February 1993

Medical Alumni

# BULLETIN

School of Medicine, University of North Carolina at Chapel Hill

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# Dean's Page

In the last issue of the *Alumni Bulletin,* I summarized briefly some of the reasons for the growing imbalance in this country between generalist and specialist physicians and the need to take a number of steps in the health care system and in medical education to reverse this imbalance. In my judgment, the problem will not be resolved until a career in practice as a generalist physician is sufficiently attractive to entice and hold a sufficient number of physicians. At the state and national levels, I will work, and I encourage others to work, to improve all characteristics of the practice environment for generalist physicians that serve to attract or to reduce detractions.

For 23 years, the North Carolina AHEC Program has been a pioneer in addressing issues related to professional isolation and community-based education. The Office of Rural Health, ably led by James Bernstein, has contributed enormously to the recruitment and retention of generalist physicians for rural North Carolina.

Within the School of Medicine, we are developing an administrative organization to develop the interests of the generalist physician. We have created the Institute for the Generalist Physician. Dr. Peter Curtis, professor of family medicine, is director of the Institute. Dr. Jake Lohr, professor of pediatrics and chief of the Division of Community Pediatrics, is co-director along with Dr. Timothy Carey, who is professor of medicine and chief of the Division of General Internal Medicine. Associate Deans Bill Mattern and Gene Mayer serve with the preceding physicians on the executive committee of the Institute. We look forward to the Institute's bridging three major departments with commitments to the generalist physician, Family Medicine, Pediatrics and Medicine, to represent the interests of the generalist in all aspects of the medical center's activities.

Our Departments of Family Medicine, Medicine and Pediatrics are each making a renewed and substantial commitment to teaching and clinical programs for the generalist student and physician.

After several years of careful planning, a four-week family medicine clerkship has been introduced for all students in the third-year curriculum. The clerkship will occur at sites scattered across North Carolina, and it is being coordinated by the Department of Family Medicine through the AHEC Program. The sites have been carefully selected, and the program content carefully designed to add an important dimension to the third-year experience.

The pediatrics clerkship, also in the third year, has been expanded from six to eight weeks with the additional two weeks being spent entirely in the ambulatory care setting, where most of the work of primary care pediatrics occurs. The three-month third-year medicine clerkship, which heretofore was entirely devoted to inpatient care, has now been changed so that all students will spend four weeks of this clerkship in ambulatory care settings working predominantly with generalist physicians. Thus, our current third-year students will continue the advantages and efficiencies of hospital-based learning while adding a very substantial experience in the setting of pediatric and adult generalists.

In addition, we have introduced a new four-week ambulatory care selective rotation as a requirement for all fourth-year students. Our students select from some 40 sites throughout North Carolina, again coordinated by the participating departments through the AHEC Program. In these rotations, the fourth-year students will work directly with generalist physicians. They will also make visits to community agencies and complete a project relating to a health care problem in the practice of their preceptor.

Finally, we have introduced a new community health project elective. Some 65 sites have been identified throughout North Carolina where students may work on a project with community groups supervised by local faculty preceptors and preceptors from Chapel Hill. As a part of this experience, each student completes a report of the project including a review of the pertinent literature.

These changes in the curriculum have been very well received by the students. Both students and preceptors are tremendously enthusiastic.

As a minimum, our students know that our School of Medicine places real academic emphasis on experience as a generalist physician. While our students properly spend a good deal of time learning from specialists, we believe that the current medical school experience will provide students with a far more balanced and informed basis for making a choice between a career as a generalist and as a specialist.

Space does not allow me to describe the large number of additional initiatives that we have under way or in planning. Given the historic and traditional responsiveness of our students to social needs and given the reality of the need for more generalist physicians, I am optimistic that these and other changes will lead us toward the goal of 50 percent of our graduates going into careers as general physicians.

Stuart Bondurant

*Stuart Bondurant, Dean*

# Medical Alumni BULLETIN

School of Medicine, University of North Carolina at Chapel Hill



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## Contents

### Features


Selecting the 'Best of the Best' Is Basis for UNC's Admissions Process ..... 2

The Evolution of the UNC Department Of Emergency Medicine ..... 6

Medical Graduate Takes the Road Less Traveled ..... 8

INCLEN Program Reaches Out to the World ..... 12

Of White Owls and Whiteheads ..... 14

UNC Alumna Leads University Medical Center ..... 17


### Departments


Dean's Page ..... Inside Front Cover

Development Notes ..... 21

News Briefs ..... 22

Faculty Notes ..... 26

Donor Listing ..... 28

Class Notes ..... 35

President's Letter ..... Inside Back Cover

Alumni/CME Calendar ..... Back Cover


### On the Cover

The new UNC Ambulatory Care Center welcomed its first patient on Monday, December 14, 1992. Clinics located in the building include surgery, dermatology, orthopaedics, rheumatology, ophthalmology, obstetrics/gynecology, ENT, medicine and pediatrics. Jointly supported by the UNC School of Medicine and UNC Hospitals, the 127,000-square-foot facility will accommodate 250,000 patient visits per year. A spring dedication is planned. *(Photo by Dan Crawford)*

# UNC Medical Students, Winners in Their Own Right

This past summer, 10,000 athletes representing 173 countries marched into Olympic Stadium in Barcelona, Spain, for the opening ceremonies of the 25th Olympiad. For two weeks, the world watched as the best competed against the best.

Hundredths of a second, tenths of a point, separated those who won the gold from those who got silver or bronze—or nothing.

Applicants to the University of North Carolina School of Medicine face a similar brand of competition. It's the best competing against the best. However, the members of the Admissions Committee don't have the luxury of electronic timers or instant replay upon which to base their decisions.

The Olympian analogy comes to mind again and again as Elizabeth S. Mann, M.D., associate dean of admissions, talks about the admissions process, stressing the quality of the pool of applicants.

"The competition is very keen and we have to use all of our skills to try to make the 'best' selections out of a large number of qualified candidates," Mann said.

In each 160-member medical school entering class at UNC, 140 slots are reserved for residents of North Carolina. In this year's entering class, there were 715 applications for those 140 places. There were more than 2,100 out-of-state applicants competing for the other 20 places.

"The math is simple, we can only interview about one in 20 and matriculate one in 100 of the out-of-state applicants," Mann said. "Now, that's real competition. These numbers reflect our strong reputation nationally. Competition is heightened by the fact that the number of applicants has been rising steadily for the last three years, but the number of places has stayed the same. Nationally, the number of places has actually decreased slightly."

How does the committee make its selections?

Mann estimated that of those 715 applicants from North Carolina, about 5 percent did not meet minimum standards. "These are people who clearly are not academically ready at this time."

On the other hand, there are some candidates that we know right away we want ." Mann estimated the size of this group is also about 5 percent of the total.

"Evaluating and making choices among the remaining 90 percent of the in-state applicants is the hard part of the job," Mann said.

"The reality is that there's no single model, or formula, for the ideal student and future doctor. In making our 'best estimate,' we look at everything we know about each applicant," Mann said. "We evaluate past academic performance—grades and test scores. We read the essays they write for content, of course, but also for grammar, spelling, punctuation and general carefulness of preparation. We scrutinize extracurricular activities, including jobs and research activities. We want to know that our student has not been a hermit. A candidate's pattern of involvement will reflect his or her interests, concerns and needs. We are interested in medically related experience, and also in service involvement of any kind. We look for anything pursued intensely, because we believe that this ability to focus is a valuable trait. We read all letters of recommendation.

"We try to assess motivation, goals and dreams, both to help us select humane, service-oriented physicians, and because we believe the happiest physicians are those who entered the field with realistic expectations.

"We encourage students to major in whatever they enjoy most, although, of course, they must be competent science students. As a group, humanities majors who take the MCAT do at least as well as science majors. Whatever the major, we value breadth and depth of education," Mann said.

"It is important for our medical students to reflect, to as large an extent as possible, the diverse population of the State of North Carolina. The committee tries to assess each student as an individual, considering both cognitive and non-cognitive characteristics. We value diversity of many kinds, and we end up with classes made up of a highly diverse group of interesting people."

The composition of the classes has changed in other important ways, according to Mann. "The number of women in medical school increased dramatically during the 1970s, and women make up 44 percent of our current first-year class at UNC," Mann said.

UNC also has been a leader in minority enrollment. "We quite simply try to identify as many qualified members of underrepresented minorities as we can among our applicants, and we continue to have active outreach efforts among minority students throughout the state. Thirty-eight members of the first-year class are self-identified as belonging to one or another racial or ethnic minority group. The committee is particularly interested in identifying students from educationally disadvantaged backgrounds who demonstrate the skills and desire to pursue professional training, and this interest can work to the advantage of anyone from any disadvantaged background."

"When I look back on my own class, chosen more than 25 years ago, by comparison, we might have been selected for apparent

Photo by Greg Plachta

*Elizabeth Mann, M.D., associate dean of admissions at the UNC School of Medicine, discusses the game plan with first-year students who successfully cleared all of the hurdles for admission into medical school. Dressed in scrubs, they are Mark White of Ormond Beach, FL, Janie DeVeau of Kinston and Donna Jones of Wilson.*

uniformity. Perhaps the most striking difference was the age distribution. In my class, all but one student came straight to medical school from four years of college. Our current first-year students at UNC range in age from 21 to 39. Thirty-nine of them were over 25 when they started medical school, and seven were over 30. We often have students who are over 40. It is not uncommon now for applicants who are not initially successful to apply several more times.

"I spend a lot of time discussing potential applications and re-applications with students. Some will finally choose another career, but others eventually succeed in gaining admission to medical school. The most important thing for any re-applicant to remember is that each application needs to show growth and development since the year before."

Mann said everyone in the freshman class had at least a bachelor's degree. They represented 53 different undergraduate institutions and about 25 different undergraduate

majors. Eleven students had earned a master's degree, three had Ph.D.s and two held other advanced degrees.

The Admissions Committee, comprised of 15 senior members, most of them faculty—M.D.s and Ph.D.s—includes a physician from the community, an alumni representative and an elected student member from each class.

Applications for admission come from the American Medical College Application Service (AMCAS), a centralized application service used by 111 of the nation's 126 medical schools. Students fill out one application and designate the schools to which they want the application sent. AMCAS verifies the transcripts and reported grades and grade point averages, things each school would otherwise have to do individually. This simplifies and normalizes the process for both the applicants and medical schools, Mann said.

"We acknowledge applications as we receive them, and screen them to select candidates for interview," Mann said.

"As I've said, we screen out only a very small percentage of North Carolina residents who apply. We feel that it is part of our mission to give a full review to any North Carolinian who is not clearly 'academically unprepared' for medical school. For non-residents, the screen is obviously very tough."

Applicants selected for interviews are sent a supplementary application, and when that is returned, scheduled for an interview. Each applicant has a single interview, one-on-one, with a senior member of the Admissions Committee. The committee interviews for four days each week from mid-August through early spring.

"We make every effort to make the interviews as comfortable as possible," Mann said. "The process is stressful enough no matter what we do."

On the day of the interview, applicants also participate in a group orientation meeting with Mann, meet with a financial aid officer and talk with second- and fourth-year medical students, who also take them on a brief tour of the medical center.

"These daily groups of applicants are interesting," Mann said. "Sometimes they seem very nervous and just eye each other quietly in the Admissions Office, but usually they introduce themselves and are very friendly and helpful to each other. That's nice. You can almost begin to see them as classmates."

Applications are reviewed in depth by three senior members of the Admissions Committee, usually the interviewer, Mann, and one other randomly selected member. Their three opinions, along with the information in the application itself, are used to present the application to the full committee.

"We lean heavily on the interview," Mann said. "That's the purpose of the interview.

"As we review applications, we offer places to applicants we are quite sure we would accept whenever we saw them, reject those we are quite sure will not be competitive this year, some of whom may be adequately qualified to study medicine. Either definitive action requires a two-thirds vote by written ballot.

"We 'hold' the others, usually a large group, who are acceptable and competitive in the current pool but not certain to gain a place. This means that some applicants must wait many months for a final answer, and then sometimes find themselves on the alternate list, but we feel it is the most fair we can be to the entire group.

> **"The competition is very keen and we have to use all of our skills to try to make the 'best' selections out of a large number of qualified candidates."**
>
> **Elizabeth S. Mann, M.D.**

"The committee has made a commitment to look at all the North Carolina applicants before we fill the class. We want to be sure that the last candidate we see has a realistic chance of admission," Mann said.

"Once we have reviewed all the North Carolina applicants, we go back to the 'hold' category to fill the last places in the class and cast up an alternate list," Mann said.

If there are more applicants in 'hold' than the committee can take, some will be left out. "We always have many more qualified applicants than we have places to offer," Mann said. "This year, I anticipate that we will make an offer of acceptance to approximately one in four North Carolinians who apply. Five years ago, that ratio was more like one in two-and-a-half."

Whether the applicant is the son or daughter of an alumnus has absolutely no influence on the process, Mann said.

The committee tells the Medical Alumni Association that the child of an alumnus has applied, but it doesn't inform the parents. "We assume that these applicants are adults, and it's up to them to tell their parents, if they want them to know."

Mann said, "Most expect that their sons and daughters will do the job for themselves. It is the exceptional parent who attempts to interfere. Most parents—alumni or otherwise—trust their children to do it, to be adults."

William E. Easterling Jr., M.D., associate dean of continuing medical education and alumni affairs, occasionally gets calls. Having served previously as associate dean for clinical affairs and chief of staff of North Carolina Memorial Hospital, he has had a continuous relationship with the Admissions Office. Through the years, Easterling said he has "always regarded the work of the Admissions Committee as an untouchable part of the institution. And I believe that, for the most part, our alumni understand and appreciate the fact that admissions are made without influence.

"I have received telephone calls from alumni, but I don't think that I have ever been asked by alumni to use my office to attempt to influence the Admissions Committee. In fact, in the majority of the calls that I get, the caller begins with some qualifying statement, 'I really hate to bother you with this—I know that you have this objective relationship with the Admissions Committee—but I want to tell you that my son or my neighbor's daughter has applied.

"Mostly, it's that they simply want to talk to someone. They respect the integrity of the Admissions Committee and feel a call to someone there might be perceived as an attempt to exert influence, but they want to talk to someone."

To the occasional applicant who wants to tell Mann about his or her parent, she may say, "There's nothing I can do about your father or your mother. Tell me about you.

"Children of doctors," Mann said, "have been exposed to medicine and have had advantages in a way that can be exciting. If their parents have been wise and transmitted their interest, they can be some of the most exciting and promising candidates you ever have."

The bottom line is that the members of each medical school class at Carolina, like the 10,000 athletes who marched into Olympic Stadium in Barcelona, are winners in their own right.

# Students Help Select Future Classes

For most medical students, the application process to medical school was one of the most stressful times of their lives. Why then, would a student want to re-live the experience for what could turn out to be hundreds of times?

Although their reasons vary, two medical students elected by their classes to serve on the University of North Carolina School of Medicine Admissions Committee agree that the answer lies in the desire to make a contribution to a process that has changed their lives.

Dave Leslie, a fourth-year student from Boston, MA, and Bernard Taylor, a third-year student from Greenville, SC, have served on the committee for three and two years, respectively.

"I was really curious about how the committee worked and how it went about selecting a class," Leslie said. "Our class really reflects a lot of diversity, and I feel comfortable with its overall composition. Class diversity is a plus in the educational process, and I wanted to make sure that it would be the case for each class."

"I've found out that the process of admittance to medical school is really fair," Taylor added.

Leslie, 32, who graduated from Brandeis University in Waltham, MA, took seven years off to work while reaching the decision to apply to medical school. When he applied the first time, he was not accepted by UNC.

"My interview with Dr. Mann was very positive," Leslie recalled. "What I lacked, and what I think she and other committee members were looking for, was not so much grades and MCAT scores, but outside interests, service to the community and volunteer work, which was something I had always intended to do. After my interview, I went out and did some volunteer work because I wanted to."

Taylor, 24, a 1990 graduate of N.C. State University, says he tries to emphasize that point to applicants, especially those who become particularly stressful over grades. "Stress is wasted energy. The committee is looking for good students who have really good interpersonal skills and who have been involved in activities outside of school. Sure, we want good grades, but we also want people who will make good clinicians and good doctors."

Leslie described the type of student for which the committee is looking as "non-well-defined, which works to the advantage of every applicant."

Each medical school class can elect one or two medical students to sit on the Admissions Committee. If two representatives are selected from a class, they share a vote when deciding if an applicant meets admissions criteria. Although student committee members don't perform formal interviews with applicants, they do have the opportunity to meet many of them when touring the medical center together.

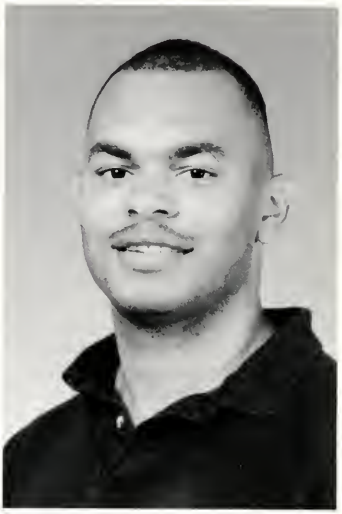
Leslie said for student committee members, it's a "learn-as-you-go-process, but it is clear early on the way things work." Applicants are interviewed by non-student Admissions Committee members; their records are reviewed and rated; committee members then hear the interviewer's assessment, which is read by Dr. Mann; and another committee member reads the applicant's references. After some discussion about the applicant, the committee then votes to accept, reject or put the applicant in the 'hold' category.

Taylor said that during the discussions, he tries to keep the student and other perspectives in the forefront as applicants are evaluated by the committee. "I see part of my role as filling that gap that may exist among members who've been out of school for some time."

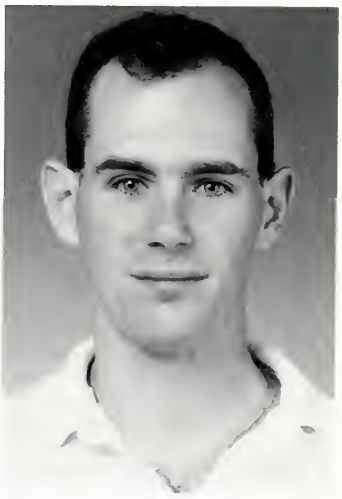
Taylor said that student input counts as much as that of faculty committee members. "Faculty members do listen. Our opinions are really valued. In fact, I've had faculty members come up to me after a meeting and ask me about my opinion of a particular situation or applicant, because I may have gone through the same experience, or know something about a certain school."

Leslie said that although participation on the committee does take time away from studying and, in his case, his family, he has found his commitment to be worth it. "Being on the committee is a good way to influence future classes of the school. I'd like to be able to look back and see that I made a difference and had fun at the same time." From September through April, the committee meets every Monday for about two hours.

Other student members of the Admissions Committee are: fourth-year student Andrew Hall of Cary; third-year student Anthony Brown of Durham; second-year students Deidra (Gigi) Evans of Chapel Hill and Scott Klenzak of Statesville; and first-year student Melanie Paul of Chapel Hill.



*Bernard Taylor*



*Dave Leslie*

# A Quiet Evolution: Creation of the Department Of Emergency Medicine

**By Anita Murphy**

At the University of North Carolina School of Medicine and UNC Hospitals, the newest clinical medicine specialty has been quietly evolving from a hospital-based patient care service into a full-fledged academic department.

The Department of Emergency Medicine, established in 1991, has taken major steps during the past year in its development as a department. Judith Tintinalli, M.D., was named the department's first professor and chair in late 1991, and since her arrival, the department has hired its full complement of 10 faculty members, established 24-hour attending physician coverage in the hospital emergency department, expanded its student rotation program, begun the application process for an accredited three-year residency training program in emergency medicine and developed several research proposals.

"The UNC School of Medicine has an excellent reputation nationally in both the clinical and basic science research areas, and has a real commitment to health care at all levels," Tintinalli said. "While our other clinical programs which address issues such as preventive medicine, intensive care and rehabilitative care, are well-known, the block that was missing was a consistent and institutional involvement in pre-hospital and emergency care. So we had fertile ground for the establishment of an academic emergency medicine department."

Tintinalli came to UNC from William Beaumont Hospital in southeastern Michigan, where she was professor and vice chief of emergency medicine and a member of the clinical faculty at the University of Michigan School of Medicine. Prior to that, she was clinical director of the Emergency Department at Detroit General Hospital.

The strength of the hospital-based emergency department here provided the solid foundation for the development of the new academic department, according to Dean Stuart Bondurant, M.D.

Bondurant said he expects the new department to flourish under Tintinalli's leadership. "Dr. Tintinalli brings to the university a record of distinguished leadership. She has contributed substantially to the shaping of the specialty of emergency medicine—as a principal author of one of the most outstanding textbooks of emergency medicine and as a leader of most of the major organizations during the formative years of the specialty.

"Her success as a leader is rooted in her great competence as a clinician. She is a highly effective, expert emergency room physician herself, and she has quickly earned the respect of the members of the faculty who have worked with her," he said.

Bondurant also credited Fred Hansen, M.D., the former director of the department who guided the department through its transition period. "We owe him a real debt of gratitude for the leadership and dedication he showed in building the staff and operations of the emergency department."

Two major purposes for the establishment of the Department of Emergency Medicine were the growing need for physicians specially trained in emergency medicine and the desire to complement the School of Medicine's other medical training programs, according to Tintinalli and Bondurant. The department's residency training program, which is expected to have its first class in 1994 or 1995, will select six residents per year for a three-year training program.

Photo by Paul Daggs

*Judith Tintinalli, M.D., chair of the Department of Emergency Medicine.*

"There is a large and growing need in hospitals in North Carolina for doctors specially trained, and well-trained, in emergency medicine," Bondurant said. "It is clear that a significant part of medical practice will take place in the emergency setting for the foreseeable future, so it was a decision of the school that we needed to participate, along with many others in the country, in the education of emergency medicine physicians."

According to Bondurant, the major reasons behind the growing need for well-trained emergency physicians are the increasing numbers of people who have no medical insurance and, therefore, have no regular primary care treatment, and the great shortage of primary care physicians.

"A much larger portion of our population than one would like does not have insurance or a primary care doctor and turns to hospital emergency departments for medical treatment," he said. "We would hope that these problems would be temporary, that the long-term problem of health insurance will be solved and that more doctors will choose primary care practices. But it appears that at least for a number of years, the emergency department will be the main source of care for many people."

Tintinalli agrees. "It's no longer just those patients with life or limb-threatening traumas who come to the emergency room for treatment. The number of uninsured people is getting greater and greater, and as a result, many people can't afford regular visits with a primary care physician," she said. The latest U.S. Census figures show that some 36 million Americans have no health care insurance.

Problems and changes in the health care system across the United States are especially visible in hospital emergency departments, Tintinalli said. "The number of emergency departments nationwide is shrinking, especially as rural hospitals close. This leads to greater volumes and censuses overall in the remaining emergency departments, so that those departments are expanding tremendously.

"In urban areas on the East Coast, hospital emergency departments are faced with increasing populations of AIDS and homeless patients," Tintinalli said. "On the West Coast, emergency departments have problems getting orthopedic and obstetrics coverage."

Too many poor, pregnant women have neither the financial means nor the desire to seek prenatal care. When it's time to deliver their babies, they just come to the emergency department, she added.

This changing demand for a wide variety of medical skills and the increasing patient load has put added strain on emergency departments throughout North Carolina.

The new Department of Emergency Medicine not only will provide specialty education through its residency training program, but it also will give medical students and resident physicians in other specialties the opportunity to get broad experience in clinical medicine, according to Tintinalli.

"Before, in our emergency department, specialty residents cared for patients who came in and had somehow been identified as having a specialty problem. But we all know that in real life it doesn't happen like that, because you may have patients with single or multiple symptoms that cross specialty boundaries.

"We're learning that the mechanism of having a specialist dealing with a defined narrow problem probably isn't the optimal way of teaching in the emergency department. We're trying to provide residents in all specialties a good, broad experience in clinical medicine in the emergency department.

"We're trying to emphasize that patients get sick with all kinds of diseases that cross specialty boundaries. They can have a heart attack on the surgical service, or develop a blood clot in the lungs on the orthopaedic service, or they can walk into a private surgeon's office with upper abdominal pain, which turns out to be a heart attack. We want residents in all specialties to learn to recognize and initially treat all kinds of problems and diseases that traditionally may not have been part of their more focused training."

Although the new department will not have its first emergency medicine residents until 1994 or 1995, resident physicians in other specialty training programs already are receiving a broad spectrum of emergency medicine training, both at UNC Hospitals and at Wake Medical Center in Raleigh.

The emergency department at UNC Hospitals treats some 35,000 emergency cases each year, according to Tintinalli. "We have an interesting mix of patients here, with both ordinary and extraordinary problems," she said. "We treat trauma patients from the local community, and we treat UNC clinic patients, especially those with geriatric problems. We also treat people who use the emergency department as their primary access to care. And, of course, we treat the very esoteric problems that are associated with a tertiary care center population."

During their rotations at Wake Medical Center in Raleigh, medical students and residents from the other major clinical programs see a different spectrum of disease and trauma, Tintinalli said. "Wake is a very large community hospital and has a much larger emergency department, seeing about 60,000 cases per year. One of the basic objectives of emergency medicine training is learning to manage a critical mass of patients. Students and residents will have that opportunity at Wake."

Learning the interdependencies between all clinical specialties is another important element of the emergency medicine training program. "In emergency medicine, we have constant interaction with other specialties," Tintinalli said. "We also must make sure we fulfill all the expectations of the other services for emergency care of their patients.

"We have to be aware of what is going on in every other specialty, so we're always faced with quite a continuing education burden," she said. "But it makes the specialty that much more interesting. It makes us jacks of all trades, but we really do have to be master of so many different diagnoses and dispositions, and we have to know when other specialty consultation is needed."

Faculty and residents in the Department of Emergency Medicine also will have opportunities for clinical research, according to Tintinalli. "We hope to develop a wide variety of interdisciplinary research projects with medical school departments and with the School of Public Health."

Simultaneous with the development of the new Department of Emergency Medicine is the construction and development of the new emergency department facility at UNC Hospitals. The new 34,500-foot facility will be located on the first floor of the North Carolina Neuropsychiatric Hospital, scheduled to open in 1995.

"This new facility is going to give us a contemporary environment in which to practice emergency medicine and deliver emergency care to our patients," Tintinalli said. "Right now the health care we give is very good. This is a high-tech place, and we have all the procedures patients need. But we aren't able to improve the logistical functions of the emergency department. For example, to get many X-rays done, patients have to go to another floor. In the new facility, we will be able to do much more diagnostic and ancillary testing on-site to better help us decide if a patient should be admitted, or if he needs to go home. Our approach to planning for the next two years is to ask ourselves, 'a patient comes in the door, now what?' It's a step-by-step analytical approach to every problem."

Tintinalli believes that the development of the new department and the new emergency medicine facility reflects a true commitment by the university and the state to provide the best possible emergency medical care to the people of North Carolina. "Our medical alumni, as well as those of us at the medical center today, can be proud that we will be able to provide excellent medical care at every level the local community and surrounding region needs, and that we will be developing well-trained, well-rounded emergency medical professionals for North Carolina."

# The Road Less Traveled By

**By Ashley Singleton**

A bearded '82 graduate of the University of North Carolina at Chapel Hill School of Medicine takes off his white coat and stethoscope, pulls on work boots and straps on a tool belt.

He goes to the hospital. The one he is building in Al Asha, Chad.

The people he treats have been without a doctor in their village since 1977. And today, he is the only one in the impoverished Quaddai region left to care for more than 70,000 people.

There is only one other white family among the 7,000 inhabitants of Adré, Chad, where he and his family now live. The inland African country's total population does not equal that of North Carolina.

Louis Sutton, M.D., stands out. But he says that has always been the case.

A Morehead Scholar from Charlotte, Sutton married Susan Scott in 1980. Scott is the daughter of former Gov. Robert Scott, who served as North Carolina's chief executive from 1969-73.

The couple met at UNC-Chapel Hill through InterVarsity, an interdenominational campus Christian fellowship.

Sutton completed his residency training at Richland Memorial Hospital in Columbia, SC, in June 1985. He continued to practice medicine in the emergency room there and taught for two years at the University of South Carolina School of Medicine where he was appointed director of undergraduate education in the Department of Family Medicine.

The Suttons' three children were born in Columbia. Scott is 9 years old; twins Susan and Elisabeth turned 7 on October 16.

Summer vacations for the Suttons included visits to Nairobi, Kenya, and to Sudan to see if they could adjust to Third World conditions. Sutton had already completed a senior elective on Kenya while in medical school.

The family then moved to Belgium, where they lived for a year so Sutton could study and practice medicine while learning French, the official language of Chad. Sutton also gained expertise in treating tropical diseases while in Belgium.

But the summer before they went to Chad, the Suttons returned to the United States and lived in a house Susan Sutton's grandparents owned in Haw River. "It had no air conditioning, and they could have easily put in window units," said Meg Scott Phipps, Susan Sutton's sister. "But they didn't want the children to get used to that luxury we think of as a necessity."

The Suttons had always wanted to be missionaries by example.

They realized that goal in August 1990,

*Louis Sutton, M.D., works in his office at the hospital in Adré, Chad. Sutton is the only doctor in the region available to care for more than 70,000 people.*

when they joined Worldwide Evangelization for Christ International, an organization that sends missionaries to more than 32 countries worldwide. The Suttons committed to a three-year tour of service, with a one-year furlough beginning in June 1993 followed by another three-year tour in Chad.

Life in Chad is not easy.

As the Sutton family was arriving, political unrest between tribes broke out, resulting in an attempted overthrow of the government. The Suttons fled to Northern Chad where they hid in the bush. Sutton salvaged only a microscope.

But when they returned, their house was fine; it hadn't been disturbed.

It is a simple house. Like others in Chad, it is made of mud-brick. The Suttons use solar lamps since there is no electricity, and showers are barrels filled with water. To make it hot, they fill rubber bags with water, warm them in the sun and then hang them in the shower stall. There are pit toilets outside.

The village missionary hospital is similarly rugged.

Sutton is responsible for the 13-bed hospital (there are actually no beds; instead, patients use mats on the floor), and says his biggest frustration is knowing what could be done but not being able to utilize modern technology to do it.

Susan Sutton's letters to her parents show her husband's dedication and give much insight into the Suttons' day-to-day lives.

"I wish Louis could have a chance to rest when he's not feeling up to par. Yesterday, he was sick and actually stayed home from the hospital in the morning (not because he was feeling sick, but because it was our scheduled once-a-month morning prayer meeting).

"After lunch he went straight to bed, only to be called into the hospital later in the afternoon for an emergency surgery. A fellow had been knifed, and his intestines were spilling out. There was no time to send him to Abéché where there are better surgery facilities, so Louis did it himself.

"The adrenaline of the moment kept him going throughout the operation, but then he came home and went straight to bed.

"When you're the only doctor around, you're the only one who can do such medical care, so there's not much chance to rest. He said the operation was successful, but of course, we have to see how the fellow heals up.

"I always knew he'd make a good surgeon. But if he'd studied only surgery, he'd not know everything else he has to diagnose here."

And though he never studied construction, Sutton diagnoses building problems two days each week since he also oversees a circuit of small clinics being built throughout the region. His main objectives are to establish a health care system of dispensaries and to train nurses in the region.

As Susan Sutton wrote to her parents, this is no small task.

"Louis is off again for a dispensary site (visit), and I'm enjoying a quiet day with the children. Now that the rains have come, the people of Adré have gone out to their fields and begun planting. The rainy season isn't here officially — thankfully, since Louis is still only on his first site with three more to go.

"He went Monday early to Al Asha to bring supplies and tell the people what to do, and then returned here Tuesday evening pretty worn out.

"Al Asha is a four-hour drive over rough roads, and the people in the village are not easy to deal with — that is, not very helpful. Louis returns here today hoping they've finished, so he can take the workers on to another village tomorrow, and return here tomorrow night or Sunday morning.

"It'll be wonderful to have them all done. Then next year (after the rainy season), he can put nurses in them, supply them with medicines and hopefully start on some of the six remaining dispensaries.

"To have four done in one year is a good accomplishment, in my opinion."

A month later, little had changed when Susan Sutton wrote again. It is a slow and sometimes frustrating process.

*Sutton treats a child during his rounds at the 13-bed hospital in Adré.*

"Louis returned from Al Asha with the first dispensary finished, and a huge dance was given in his honor which lasted all night.

"He arrives at a village to find they haven't finished the work he'd told them three weeks ago needed to be done before he could come to put the roof on. He's on a schedule, but they take two or three extra days out of it.

"Well, it's not easy, but one is finished, and he'll push on to get the others. I truly think part of the problem is they're used to big organizations coming in and doing it all for them. This project requires their cooperation."

The project also requires improvisation and flexibility, of which the Suttons seem to have a boundless supply.

"Last week, Louis went to Abéché to buy building supplies for these dispensaries plus to transport some patients to the larger hospital," Susan Sutton wrote. "Often, he refers patients to the larger hospital if they can't be treated adequately at Adré.

"One fellow had nearly died twice from loss of blood and needed surgery to sew up an artery. When they arrived at Abéché, they found that the surgeon had left Chad.

"The fellow couldn't afford to go on to N'Djamena, which was the only other option, so Louis decided he'd try to do the operation himself. He asked the missionary community to pray for him that night, and the next day he performed a successful operation.

"Louis came home around two o'clock and said the fellow is doing well, thank God. I'm sure that's created quite a stir around here. Surgery is not a regular event at the hospital here."

American doctors do not regularly practice in an African nation. Of Sutton's 159 fellow graduates of the UNC School of Medicine in 1982, only a couple others are known to have performed missionary work, according to the alumni affairs office. Through this service, though, Sutton says he has gained insight — an international perspective — on health problems the world faces today.

"Because of the legion of medical problems in underdeveloped countries, missionary doctors are frequently overworked to the point of physical exhaustion, spiritual dryness and ineffective personal witness," Sutton said. "It is difficult to turn this ministry over to the nationals, as a national doctor is required to replace the missionary doctor, and most national doctors, once trained in the city, are lured to remain there in a more civilized environment.

*Sutton uses a foot pump to inflate his tires before traveling to a remote dispensary site as village children look on. Sutton hopes to build seven clinics and train nurses to work in them.*

*A village woman, who lost the use of her legs due to polio, and her three children enjoy a visit from Susan Sutton.*

*Elisabeth Sutton, Meg Scott Phipps, Robert Scott, Susan Sutton, Susan Scott Sutton, Louis Sutton and Scott Sutton gather together for lunch, their biggest meal of the day. Draped cloths protect them from the sun's rays; temperatures in Adré can reach 104 degrees in the summer.*

*Scott Sutton, 9, and a friend share a ride on a donkey, the most popular mode of transportation in Chad.*

*Louis Sutton and his son, Scott, brave the humps and bumps of a camel ride.*

*Photos courtesy of former Gov. Robert Scott*

"The mission hospital strategy is a model that focuses on the correction of problems that have already occurred, and unless preventive health and public health are undertaken, the stream of illness will flow on."

But it is likely, too, that the stream of hope and love that the Suttons have established by example in a Chad village will continue to nourish a people who rarely encountered such kindness.

As former Governor Scott says, it is not easy adapting to Third World conditions where farmers thresh wheat the way they did in Biblical times. Where grocery shopping requires a one-mile walk over gritty sand to get to an open-air market whose sellers are likely to be in the fields, not selling their goods.

But the quiet pauses transfuse the Suttons with strength.

Rainstorms, camping trips with the children and church services make life simpler, richer.

Susan Sutton wrote in August: "The rains are wonderful. They come in some form nearly every day. We scramble to shut windows on the side where the wind blows, bring in chairs, mats and solar lamps and sit at the open windows watching the rain like a street cleaner sweeping the yard.

"Sometimes we pull out a game to play or read or just watch till it's over. Then the children run outside immediately after it's over and have the greatest time in all the huge puddles."

Susan Sutton's sister, Meg Scott Phipps, says her nieces and nephew have adjusted well to life in Chad, despite its vast difference from American life.

"They have been just fine because they have such a close family relationship," she said, "and I think it helped the children for Susan and Louis to indoctrinate them all along about how it would be in Chad."

The Suttons say they are happy and are doing what they feel they are being led to do. Family life is good; it's only in a different place with a different culture.

Louis Sutton stands out. He took "the road less traveled by." And when a man who would have died were it not for Sutton's presence in Chad lives, he knows that it has made all the difference.

# INCLEN– Reaching Out to the World

**By Anita Murphy**

While the primary role of the University of North Carolina School of Medicine and the UNC medical center is to provide health care and medical education opportunities for the people of North Carolina, there is also a commitment to reach beyond the state's—and even the country's—boundaries to improve health care for people throughout the world.

An important result of that commitment is UNC's involvement in the International Clinical Epidemiology Network, or INCLEN, which reaches people in developing countries by encouraging clinical epidemiological research which can effect changes in medical practice and in national health policies in those countries.

The program was established in 1980 by the Rockefeller Foundation "with the idea that improving the level of training for medical professionals in developing countries would have a direct impact on health care," said Robert Sandler, M.D., associate professor of medicine and a member of the INCLEN faculty at UNC.

UNC joined the program in 1986 and is one of only five INCLEN training and resource centers worldwide, according to Laura Sadowski, M.D., research assistant professor of medicine, who is the director of the INCLEN program in Chapel Hill.

"INCLEN seeks to change the attitudes of those who make decisions about priorities and resource allocation in health care," Sadowski said. "This is done by re-orienting the thinking and priorities of clinical professors to adopt the principles of clinical epidemiology so that they can develop the essential evidence upon which to base clinical, managerial and political choices. This process includes changing the medical education system in these countries to incorporate clinical epidemiology into the undergraduate and post-graduate curriculum."

Through INCLEN, physicians from developing countries receive master's-level training in health research and management so they can develop and conduct population-based studies of major health problems in their countries. Results of such studies are then applied to clinical practice and often influence national health policies.

"In our first seven years, UNC has had 25 faculty members directly involved in the INCLEN program," Sadowski said. "Our faculty have served as teachers, advisers and collaborators here at UNC and abroad. Each fellow at UNC develops a research protocol during his or her year at UNC. This research has addressed a variety of health problems, including hepatitis, tuberculosis, trauma, infant mortality, stroke and the effects of tobacco."

"We are extremely proud of our INCLEN affiliation and dedication of our faculty to this program," said Dean Stuart Bondurant, M.D. "One of our missions is to improve the quality of health care for people, and it's a mission with no geographic boundaries. Certainly, we have much expertise to offer physicians and other health professionals in developing countries of the world."

"Dean Bondurant has been extremely supportive of this program," Sadowski said. "INCLEN adds to UNC's international presence and has established productive links to other universities. These links provide UNC faculty with opportunities for international collaboration."

Being selected as an INCLEN training center is recognition of the school's strength in clinical epidemiology. "UNC has a reputation as a leader in medical and public health training, and being selected as a training center affirms that," said Sara Salama, coordinator of the UNC INCLEN program.

Sandler agrees. "The folks at the Rockefeller Foundation visited those places in the United States where they thought it would be possible to establish training centers with expertise in clinical epidemiology. We were selected as one of three in North America. It's an honor for us and it speaks to our large number of faculty who are trained in epidemiology," he said.

The other clinical epidemiology training centers are: University of Pennsylvania, Philadelphia; McMaster University in Hamilton, Ontario, Canada; and University of Newcastle, Australia. In addition, the University of Toronto, Canada, provides education in health care evaluation and management.

Through INCLEN, 27 medical schools in 16 developing countries now have developed clinical epidemiology units, or CEUs. Each CEU is composed of six physician/clinical epidemiologists, a physician/clinical economist, a biostatistician, a health social scientist and a member of the health care management faculty. The deans of the medical schools are designated sponsors for the CEUs, helping to ensure the institutional support and viability of these units. The deans attend the annual and regional scientific meetings of INCLEN as well.

Each year, junior and mid-level faculty members from these schools are selected for one-year fellowships at the four training centers. Thus far, some 225 fellows have been trained, approximately 50 at UNC. As many as seven INCLEN fellows are trained each year at UNC in biostatistics, health

Photo by Jay Mangum

*The INCLEN program staff and fellows view the world as a global village. Four continents are represented in the photograph, as Laura Sadowsky, M.D., (seated) INCLEN Program director, scouts a location for the 1993 annual meeting with fellows: (from left) Abraham Peedicayil, M.D., of Vellore, India; Rebecca Din-Dzietham, M.D., of Yaounde, Cameroon; and Martine Wallon, M.D., of Lyons, France.*

economics and health social science as well as clinical epidemiology.

"An incredible array of research is undertaken by these physicians," said Sandler, who works closely with fellows in developing research protocols and provides long-distance support and advice to fellows after they leave Chapel Hill.

"When they get back in their home environment, their projects are truly targeted at the major health problems of their countries —infectious diseases, cardiovascular diseases and cancer," he said. "The volume and quality of the research that has come out of this program is great."

One physician from south India who worked with Sandler realized after his return home that there were lots of cases of hepatitis. Using the tools he learned here, he did a research study to find out why hepatitis was so prevalent.

"It turned out," Sandler said, "that a lot of cases were from re-usable needles. That information could potentially translate into some solutions—perhaps using disposable needles, different sterilization methods or education projects.

"But this physician was able to say 'here's a problem, here's a cause, here's the answer.' And it's likely to have a pretty significant impact on a serious problem."

Rebecca Din-Dzietham, M.D., a cardiologist from the University of Yaounde, Cameroon, has ambitious plans for her research following her INCLEN fellowship and another year of independent study at UNC.

"I will work on rheumatic heart diseases, the second most common cause of hospitalization in pediatric wards, with the ultimate goal of eliminating it by 2010," she said. Her first project, though, will be to test the efficacy of using nurses to help improve the compliance of children who are under treatment.

"More and more, not only in Cameroon, but in the world, we are learning that we should rely more and more on nurses, and give them more training and responsibility," Din-Dzietham said.

The significance of INCLEN goes well beyond the year of training at UNC. An ongoing global network of support has developed among the health scientists.

What makes this project unique is the continued support and collaboration between the CEUs and training centers, which is key to the success of INCLEN, Sadowski said.

"We try to contact each of the CEUs where our UNC-trained fellows are working relatively frequently to see if there is some specific support we can provide—scientific expertise or computer software, for example," Sandler said. "They may bounce research ideas off of us, they may ask us for some advice or we may review preliminary scientific reports they've generated. We provide, maybe, a bonus. If they need some help or advice, we're available."

The long-range goal of INCLEN is to train a core of medical professionals at each of the 27 medical schools (CEUs) worldwide so that they can, in turn, begin training professionals from other schools or hospitals within their own countries.

Some CEUs are already beginning to develop their own training programs. As basic clinical epidemiology research training shifts from the international training centers to the CEUs, the role for the initial training centers will move toward more advanced training and support.

After a decade of training, INCLEN is having an impact on the world's health care, according to a Rockefeller Foundation report. Among the examples cited: changes in the control of Hepatitis B in the Philippines; increased use of mosquito nets in Thailand; better health information systems in southeast Asia; and closer cooperation and collaboration between CEU medical professionals and Ministries of Health in many developing countries.

"I think the basic idea is that the world is a big village, a global village," Din-Dzietham said. "Communication is increasing, diseases are easily communicable. So it is better to increase the level of cooperation between countries. It is better to increase the research capability and give people the tools to solve problems."

Sadowski said INCLEN "encourages physicians worldwide to look at health and disease through a wider lens."

"The people at the Rockefeller Foundation really had a lot of vision when they started the INCLEN program," Sandler said. "I think it was probably a big gamble for them. But they had vision and they were able to structure it in such a way that I think it's really been a phenomenal success. And that's not just an opinion. You can document the number of articles in the scientific literature about the direct scientific findings that have come out of this.

"There's no question those probably wouldn't have happened without the support of the Foundation and this program. At the INCLEN meetings you see the excitement about what's going on," Sandler said. "It's a pretty amazing thing."

Sadowski said, "INCLEN seeks to ensure that the medical establishment is part of the solution rather than the problem faced by health systems in less developed countries. Already CEUs in Thailand, Indonesia, Chile and Cameroon are playing an important role in helping their countries determine health care priorities and plan rational distribution of scarce resources."

# 'Of White Owls and White Heads'

**Editor's Note:** *Christopher C. Baker, M.D., professor of surgery, delivered the 1992 Whitehead Lecture. The Whitehead Lecture was established to recognize the high standards and leadership of Richard H. Whitehead, M.D., who served as dean of the School of Medicine from 1890 to 1905. The following text is adapted from Dr. Baker's lecture.*

**By Christopher C. Baker, M.D.**

Many people think of surgeons as the Neanderthals of medicine, primarily concerned with performing technical procedures. I assure you that we have occasional bursts of cognitive activity, some of which I will share with you in the next few minutes.

The owl has been seen as a symbol of wisdom and mystery throughout recorded time. The "white heads" portion of the title was meant to be a play on words—separating the two syllables of Dr. Whitehead's name—referring to the wisdom of one's elders. At this point I need to tell you about the white owl mythology. When I was a surgical resident in San Francisco in the 1970s, Dr. George Sheldon, now chair of the UNC Department of Surgery, was on the faculty at San Francisco General Hospital. In those days a tradition evolved that people would be given a "white owl" award if they did a negative appendectomy or a negative laparotomy for trauma.

It is hard to decipher the genealogy of the term "white owl." One explanation was that a normal appendix was thin and white and reminded people of the White Owl cigar. Another version was that the anesthesiologists would bet the surgeons a White Owl cigar that their operation was going to be negative. This was carried to the sublime when one of the anesthesia residents purchased a full-sized stuffed white owl at a garage sale.

> "The white owl tradition centered on having the strength of character to admit one's mistakes and the wisdom to learn from those mistakes."

My introduction to this tradition occurred in October of 1974 during a negative laparotomy for trauma. I heard an anesthesia resident saying "whooo..., whooo..." and looked up to see the aforementioned stuffed white owl floating majestically above the ether screen.

The white owl tradition centered on having the strength of character to admit one's mistakes and the wisdom to learn from those mistakes. It also stressed the importance of camaraderie and teamwork between surgeons and anesthesiologists.

The white owl tradition sort of faded from my mind after I left San Francisco in 1981 to go to Yale, which has ivy on its walls and is a bit stuffier place than San Francisco General. However, in the fall of 1989, after I arrived here to join Dr. Sheldon and Dr. Anthony Meyer (a fellow resident from San Francisco days) in the Department of Surgery, the white owl came to roost in Chapel Hill. Unfortunately, this occurred *primarily* because of my actions.

One day in early November, the residents called and insisted that I had to come see a young man named Scott Williams in the infirmary right away. Not yet a rabid UNC basketball fan (which takes a season to occur), I did not know that Scott was the star center on the UNC basketball team. It was two weeks before the start of the basketball season, and Scott was a 21-year-old, 6' 11" male complaining of right lower quadrant pain and nausea. You can probably surmise the rest of the story.

Although not 100 percent sure that Scott had appendicitis, I decided he needed to be relieved of his appendix, since I had been taught in San Francisco that the abdominal wall should not stand between the surgeon and the diagnosis.

Anyway, as we were preparing to do the appendectomy, I was telling the white owl

story to the residents when Dr. Meyer, with his impeccable sense of timing, came into the operating room just as we removed the offending organ—a normal appendix. Jumping at the chance to embarrass his former chief resident, Dr. Meyer dashed to his mighty Thunderbird, cranked up the car phone, and gleefully transmitted this information to Dr. Sheldon. The next morning at residents' conference, Dr. Sheldon cere-

The reason I relate this story is to emphasize the balance between knowledge and wisdom, and the importance of maintaining a sense of perspective. One of the strengths of our training program in surgery at UNC is that the residents know that the members of our faculty are willing to admit their mistakes in order to learn from them. When medical students rotate on the surgical service, they go to our morbidity and mortal-

edge and wisdom, it is critical to hone your problem-solving skills. Don't be afraid to ask questions and challenge your teachers. Most faculty members thrive on this interaction, and some of us even learn from it.

Some of you may be asking: "What does wisdom have to do with all this?" Wisdom is that quality of being knowledgeable while knowing the limitations of knowledge in general and of one's capabilities in partic-

*Prairie*

*Baker*

*Snowy*

moniously presented me with Snowy, the new mascot of the white owl tradition.

As Dr. Sheldon said, "There are very few individuals who can transplant mythology over 3,000 miles and 10 years in time." Happily, the tradition caught on, and our chief residents all get pins to signify their membership in the White Owl Society. When patients ask me what this pin means, I say it's for wisdom; if they *really* push me, I *occasionally* tell them the Scott Williams story.

The story has a happy ending. Although I got a lot of grief from my surgical colleagues about Scott and the "white owl" during the 1990 basketball season, I pointed out that he had his highest single game point total at UNC *after* I did his appendectomy. Although not drafted by the NBA, Scott knew a UNC alumnus named Michael Jordan who helped him get a tryout with the Chicago Bulls. As their backup center, Scott has two championship rings in his first two seasons as a pro, so I don't think I hurt his career.

ity conference and hear us discuss complications and learn from each other's mistakes.

Until recently, this collective soul searching was unique to surgery, and it remains critical to the socialization of young surgeons. We try to stress that it is human to make mistakes, but that it is wrong to fail to learn from those mistakes.

For many of you, medical school will be a vastly different educational experience for a number of reasons. One difference is the need to develop a "fund of knowledge." In high school and college, your performance was based on your innate intelligence and the ability to apply yourself to the task at hand.

As you enter the profession of medicine, however, the pursuit of knowledge becomes a lifelong experience with different applications. In many cases, your ability to help a patient depends directly on the ability to marshal your fund of knowledge to address the problem at hand. In the quest for knowl-

ular. For instance, what separates excellent surgeons from average ones is not how fast they are with their hands, but rather how well they make decisions about *when* to operate, *what* operation to do, and *when* not to operate.

There are two important skills you will need to acquire if you wish to become both knowledgeable and wise as a physician. The first skill revolves around pattern recognition, being able to recognize patterns and put various symptoms and physical signs together into a cohesive diagnosis. Try to develop the skill of lateral thinking. Be flexible and open to various perspectives. Don't jump to conclusions too early in the diagnostic game before evaluating the available data. If you keep the blinders off and your mind and heart open, you will become skilled at looking at things from several different perspectives.

The second important skill that you must learn to develop is the ability to listen to

patients. Although they may not tell you their story in fancy medical jargon, they will often express clues to their problems in their own words. Not only is listening an important diagnostic skill, but it is also a powerful therapeutic tool. When dealing with terminal patients, being a compassionate listener may be the only thing that a physician can offer.

Some of you are probably asking, 'What about the white owl?' I will now utilize a few ornithological motifs to demonstrate how one progresses through various phases of medical education in search of knowledge and wisdom. For example, the not-so-white juvenile prairie owl reminds me of a fourth-year student or new intern. He looks a bit ungainly, and it's not clear that he can fly from the nest alone. Many of you may not want him to fix your hernia.

Interestingly, the prairie owl shreds dried cow manure to line its underground nest chamber. Biologists have speculated that the odor of manure protects the owl by masking its presence. There are definite analogies to new interns here, which will not be lost on those of you who have worked with interns or remember being one.

The next step is represented by the more mature great horned owl, a majestic bird with a wing span of 4 feet and plenty of self-confidence. It looks like an owl you could trust. I would liken this creature to a chief resident or junior attending having progressed to the stage of conscious competence.

One of the ways of acquiring wisdom is to learn from one's elders. My father, now 77, received his medical and surgical training at Harvard and moved to New Hampshire in 1950 to practice. He has been a tremendous role model for me and has taught me many lessons over the years. As a youth, I remember asking him what the big words he was using meant. He would point to the library and say, "There's a book in there—go look it up." He was preparing me for a lifetime of inquiry by telling me that he wasn't going to give me answers to questions when I could seek them for myself. When I would apologize for doing something wrong, my father would retort with gentle statements like, "Don't say you're sorry. Just don't do it again." This unforgiving standard of excellence may seem harsh when applied to a child or adolescent, but it is characteristic of the high standards to which you must aspire to be a good doctor.

Another person who taught me a great deal was my mother, Jean H. Baker, known to her friends as "Pinky." A former scrub nurse, she had a wry sense of humor, a flair for the absurd and a zest for life. She loved flowers, Labradors and the ocean. Tragically, seven years ago she was killed in a car crash just 10 days before she and my father were to move to their retirement home on the New Hampshire coast. Having taught me many lessons in life, she taught me two very valuable lessons in dying. The first lesson was to enjoy the company of one's spouse, family and friends as often as possible. Don't put this off for a retirement period that may never come.

> **"Don't jump to conclusions too early in the diagnostic game before evaluating the available data. If you keep the blinders off and your mind and heart open, you will become skilled at looking at things from several different perspectives."**

The second lesson was to maintain a sense of humor at all costs, for it will sustain you during times of stress and help the healing process after times of tragedy. When I talk with families who have lost loved ones after trauma, I can truly say, "I know what you are going through." Being more attuned to the anguish that people feel at the loss of a family member has made me a better physician.

The last issue I would like to discuss is time. In medicine, as in life, time can either be your friend or your enemy. I urge you to accept the fact right now that there will never be enough time to do *all* the things you want to do.

In the book called, *Zen to Go*, by Jon Winokur, the following interchange between Tom Seaver and Yogi Berra takes place: Seaver says, "Hey, Yogi, what time is it?" Yogi's response is, "You mean now?"

The profession of medicine can consume a great deal of your energy and time. Avoid setting unrealistic goals—they only make you discouraged when you fail to complete all your tasks.

A wise man pays heed to time. I fear I have overstayed my allotted time, but I thank you for your attention. To the class of 1996, welcome to UNC. You have a wonderful future ahead of you. To the members of the Whitehead Society, I thank you for the tremendous honor of giving this lecture.

# In a Class by Herself

**By Beverly B. Thompson**

When Carol Ann Kemp Aschenbrener, M.D. '71, entered the University of North Carolina School of Medicine in 1968, she was one of five women in her class.

Today, she is in a class by herself as the first and only woman to be appointed chancellor of a university medical center in the United States. As the leader of the University of Nebraska Medical Center, Aschenbrener says she is very cognizant of the fact that her actions are, perhaps, looked at a little more closely.

"There's no question that some people will pay more attention to see if I'll be able to lead and accomplish my objectives as a woman in a field that has been traditionally the domain of men," she said. "Also, it's the curiosity factor when you're the first from any group. It just makes me try to be more thoughtful of what I do and the statements I make in public."

Since her appointment last August, 47-year-old Aschenbrener says life has been a "whirlwind. Very intense, but very pleasant. I've been in the process of trying to paint a mental picture of the environment here—discovering and meeting with people I need to know and to develop relations with—from policymakers to people in the community."

The University of Nebraska Medical Center is the health sciences arm of a four-campus state university system and is made up of: the colleges of Medicine, Pharmacy, Dentistry and Nursing, the School of Allied Health; the Eppley Institute for Research in Cancer and Allied Diseases, the Meyer Rehabilitation Institute; and the University Hospital and University Medical Associates (outpatient clinics). The medical center has a budget of about $370 million, with 5,747 employees and 2,757 students.

When she began her duties, Aschenbrener did not come with a ready-made vision. It's not that she lacked ideas on where the medical center should be heading, rather it reflected her belief that vision can't be imposed on people.

"The leadership in any institution has a powerful role in helping to shape that vision, but vision must be something that is owned by the people," she said. Once there is vision, leadership serves as the primary articulator of that vision, being its cheerleader, so to speak," she said.

She has come to realize, though, in the process of shaping that vision that there are numerous positives about the university of which many people are unaware. "I knew when I came here that this was a good institution. I have learned that it is outstanding, much better than I and a lot of people knew it was. One of my goals is to be an effective spokesperson so that more people can be aware of the exciting things going on here.

"For example, we are on a journey to a new level of distinction in many areas of excellence—such as in cancer. We also are considered one of the top three places for liver and bone marrow transplantation. We are the first medical center to test antisense oligonucleotide in the treatment of leukemia. And we are well-known, well respected and considered a leader in our approach to rural health education and care."

Aschenbrener began her academic medical career at the University of Iowa College of Medicine as a pathologist in 1974, and was made a full professor in 1987. During that time she also held various administrative posts and was appointed executive associate dean in 1990. She says that the experience served her well because the University of Iowa College of Medicine and the University of Nebraska Medical Center are similar.

"Iowa is a neighboring state, so people are similar in their goals and values, and in addition, we face many of the same health problems, such as the need for more rural health education and a shortage of primary care physicians, which is also a national problem," she said.

A Dubuque, IA, native, Aschenbrener received her undergraduate degree from Clarke College in her hometown and a master's degree in anatomy from the University of Iowa. Although she spent most of her life in the Midwest, Aschenbrener, who is a UNC School of Medicine honors graduate, enthusiastically credits her time spent in Chapel Hill as helping to prepare her for her present position.

"I received a wonderful education at UNC. There were lots of opportunities for individual decision-making about structuring our courses to how we felt they best suited us, as students. For example, if you felt you needed to spend less time in lecture and more time in the lab or library, you were allowed to do that."

A pathology course taught by Kenneth M. Brinkhous, M.D., Alumni Distinguished Professor Emeritus of Pathology, particularly stands out in her mind. "He would

*Carol A. Aschenbrener, M.D., is the new chancellor at the University of Nebraska Medical Center.*

begin every lecture by asking questions of the class. It could have been nerve-racking, but the way he did it made the whole process extremely helpful. If you answered a question correctly, he'd ask another, then another, until you didn't know an answer. It was a way of helping him and, most importantly, you realize the bounds of your knowledge."

Other faculty quickly came to mind as Aschenbrener recalled her Carolina experience: George Penick, M.D., professor of pathology, "was responsible for my return to Iowa, and is one of my mentors." (Penick, who left UNC in 1970, recently retired as chair of the Department of Pathology at the University of Iowa.); Frederic G. Dalldorf, M.D., professor of pathology, who was "exciting as a teacher and knowledgeable;" the late Nathan Womack, M.D., the first chair of the Department of Surgery, "my surgery preceptor;" William Huffines, M.D., associate dean for basic sciences and medical allied health professions, "who I sometimes see at medical meetings;" and William E. Easterling Jr., M.D., associate dean for continuing medical education and alumni affairs, "who not only was one of my professors, but was my own personal physician." (Easterling also was Aschenbrener's obstetrician while she was pregnant with daughter, Erin, who now works in suburban Chicago.)

Her time in the South also served to broaden her experience socially. "It was my introduction to a wider reality. For example, I was unfamiliar with the illiteracy problem facing our nation—the literacy rate is quite high in Iowa, so it was something I knew little about."

Aschenbrener admits too, that as a female student from the Midwest she probably was seen as different from other females in her class. "This shows how much society has changed in 20 years. As a student, I was very outspoken. There were a few who weren't accustomed to this. I remember one course where the overall recommendation was that I receive an honors grade. I was later told that there were a few residents who didn't appreciate the fact that I was so outspoken and recommended a much lesser grade."

She says she is glad that more women are deciding to go into medicine and that she would like to see more women go into academic medicine. "One of my external activities I find most rewarding has been my participation for the last five years in Association of American Medical Colleges seminars for women in academic medicine. There are some wonderful and very talented women coming along and we should do our best to nurture that pool. However, the proportion of women choosing to go into academic medicine as compared to practice still does not reflect their increased representation in the profession of medicine."

Aschenbrener says that all of her experiences have helped her prepare to face the challenges that lie ahead for UNMC. "Our future lies in our ability to continue to focus on what we do better than most—our education programs in all of the health colleges; the development of education experiences in primary care in rural settings and our excellent research programs."

She said her goal is to have UNMC be "a place that recognizes the ability and potential of everyone, and that it be a community where people can and joyfully *want* to achieve their best."

# Brinkhous Marks 46 Years at UNC

**Editor's Note:** *William B. Blythe, M.D., chief of the Division of Nephrology, recently interviewed Kenneth Brinkhous, M.D., who was the featured guest of the Bullitt History of Medicine Club. Brinkhous, who is Alumni Distinguished Professor Emeritus of Pathology, discussed his experiences as well as his thoughts about the future of the UNC School of Medicine.*

Forty-six years ago, fresh from the rigors of World War II, the world was in transition. So was the University of North Carolina School of Medicine at Chapel Hill.

Just the year before, the North Carolina General Assembly authorized university trustees to expand the medical school from a two- to a four-year institution. On November 1, 1946, the medical school grew by one more person—Kenneth Merle Brinkhous, M.D., who began work as chair of the UNC Department of Pathology.

Brinkhous, Alumni Distinguished Professor Emeritus of Pathology, can be considered one of the great leaders at the UNC School of Medicine. Since his arrival 46 years ago, he has made an indelible impact on the lives of hundreds of medical students who have taken pathology courses. In his own right, he developed the Department of Pathology into an international leader for its contributions in the field of blood disorders.

Brinkhous, who has received numerous awards and honors, is also noted for having the longest running National Institutes of Health grant, funded in 1946.

Brinkhous grew up in Iowa and attended the University of Iowa, where he received his undergraduate and medical degrees.

> **"This university is right on the front lines in medicine. It is really impressive and really surprising that what started out as a relatively simple institution could grow into something like this."**
>
> Kenneth M. Brinkhous, M.D.

From 1932 to 1946, he served there, attaining the rank of associate professor in pathology in 1945.

In the summer of 1946, W. Reece Berryhill, M.D., dean of the medical school from 1941 to 1964, wrote to Brinkhous inviting him to be a part of his vision for the future expansion of the medical school. "He said that Dr. Russell L. Holman (chair of the Department of Pathology) was leaving to accept the chairmanship of pathology at the Louisiana State University School of Medicine," Brinkhous said.

"I was immediately interested, having heard a lot about Chapel Hill from a National Guardsman from Durham, whom I had recruited during my service in the Army Medical Corps. As soon as I got Dr. Berryhill's letter, I went to get a copy of the latest census, which was 1940. I was surprised to see that the population was about 2,600.

"When I arrived in Chapel Hill, my wife, Frances, and I were charmed by Reece and Norma Berryhill. The atmosphere of the town was very collegial, and there were a lot of GIs around, and a very mature student population. Someone had said, 'there's no difference between students here and anywhere else, except for the fact that Chapel Hill students always had dusty or muddy feet.' There were no sidewalks at the time.

"Overall, we were completely captivated and quickly decided that this was the best opening in the country."

Brinkhous said that soon after beginning work in Chapel Hill, he was even more impressed, with the facilities as well as the students and faculty. At the time, the medical school was located entirely in MacNider Hall. "There were 32 students in the sophomore class and everyone knew when anyone was having trouble with their girlfriend.

Photo by Dan Crawford

*Kenneth M. Brinkhous, M.D., Alumni Distinguished Professor Emeritus of Pathology, (right) remembers his experiences at UNC with William B. Blythe, M.D., chief of the Division of Nephrology.*

"The students were tremendous," Brinkhous said. At the beginning of his classes, Brinkhous had the custom of walking in, asking a question and then calling on a student—an action that would evoke terror in many students. He described an incident that a former student later related. "My wife and I were eating dinner at the Carolina Inn, when a former student walked up to me and told me about the time he and his buddy, who was also in my class, had been studying together in anticipation of one of my quizzes. Well, when they got to class, his buddy went to sleep. I walked in and the student said he nudged his buddy to wake him up. His buddy immediately stood up and started to answer the question. I hadn't even asked the question."

Brinkhous described the departments, many of which were in their early developmental stages. "I remember attending my first faculty meeting and walking in and saying, 'where is everybody?' Because the departments were really compact in size, consisting in most cases of two, three or four people, faculty really did make the difference. We had people like Dr. James B. Bullitt, called 'Gentle Jim' by students. (Bullitt was chair of the Department of Pathology from 1913-1946.); Dr. James Andrews, professor and chair of the Department of Biological Chemistry; Dr. John Ferguson, who headed the Department of Physiology; and Dr. Daniel McPherson, chair of the Department of Bacteriology. They and a few others were the base upon which Dr. Berryhill had to build an expanded School of Medicine."

Brinkhous was asked to summarize the changes of the medical environment at UNC since 1946. "I heard someone say recently that medicine is not an exact science. I look at it the other way. Medicine is based on the sciences. I often wonder what has happened to all the science. What has taken place here at UNC in 40 years is like comparing daylight to darkness. Look at all the developments in sciences like immunology, molecular biology. There is so much talent in this institution that you can always find someone producing in any area.

"This university is right on the front lines in medicine. It is really impressive and really surprising that what started out as a relatively simple institution could grow into something like this.

"Personally, I think I was born too soon. The research environment now is so exciting. There are so many things you can do. Great things are still ahead of us."

# Development Notes

## Raising Awareness While Raising Funds

His record speaks for itself.

As national chair of the Loyalty Fund of the University of North Carolina Medical Alumni Association for the past three years, John W. Foust, M.D. '55, has seen numbers on the upswing. Since 1989, the number of alumni contributors to the annual, unrestricted fund has almost quadrupled, from a low of 9 percent to a projected 33 percent for 1992-93. And under his leadership, contributions have grown almost 500 percent to $332,000 in 1991-92.

The reason, says Foust, is simple—personal contact—through class reunions and county challenge campaigns, phone calls, letters and the annual case statement.

"Before, our major fund raising tool was the pledge card. That explained the 9 percent participation which raised $56,000. With personal contact, we have the opportunity to really communicate with alumni, to educate them about what the Loyalty Fund does and how their contributions benefit medical students as well as the practice of medicine today."

The Loyalty Fund Associates giving category was created in 1989 to recognize the importance of significant private support of the medical school. Associates contribute a minimum of $1,000 or more during a fiscal year. The Loyalty Fund supports a variety of student, alumni and faculty programs, including the Whitehead Society, *FAX*, a student-run research journal, the Distinguished Medical Faculty Awards and the Distinguished Service Awards. It also supports the Loyalty Fund Merit Awards which provide scholarships for medical students based on academic achievement. The fund also provides financial assistance for the *Medical Alumni Bulletin* and other medical school related projects.

Last year, for the first time, a $10,000 grant was made to the Health Sciences Library at UNC. "We are very grateful for the Medical Alumni Association's contribution," said Carol Jenkins, director of the Health Sciences Library. "We have agreed to put the money toward supporting our collection. With the prices of journals increasing 50 to 100 percent in some cases, state funds have not kept pace. This money has enabled us to avoid having to cancel more journal subscriptions." According to Foust, the association plans to make an annual award to the Health Sciences Library.

As an alumnus of UNC and of the School of Medicine, Foust has maintained extensive and close personal ties with the university and the medical school. While he keeps a busy schedule as a Charlotte otolaryngologist, and as a member of boards of directors of area businesses, he says he feels a special responsibility to the medical school.

Although he credits Loyalty Fund campaign volunteers and Medical Foundation staff for the success of the Fund, Foust logs numerous hours toward seeing that each of the approximately 4,250 alumni has the opportunity to participate. He often attends meetings of class and county campaigns. Foust recently attended a steering committee meeting of the Class of 1943, and last spring, helped organize a campaign for the Class of 1992, which obtained a 48 percent participation rate in gifts and pledges.

"I enjoy meeting and conversing with alumni of all ages. Most are interested and willing to support their alma mater, but some are confused about state funds and the medical school's budget. What they don't realize is less than one-third of the $300 million medical school budget comes from the state. The balance is obtained through federal grants, clinical fees and private support. Obviously, private support is becoming more and more crucial."

How does the UNC medical school participation rate compare to North Carolina's other medical schools? Last year, Duke achieved a 68 percent participation rate, raising approximately $917,000, while Bowman Gray had 51 percent of its alumni participating, raising about $500,000 in unrestricted, annual fund contributions, Foust said. Both schools have about the same number of living alumni as UNC.

*John W. Foust, M.D.*

With support steadily increasing, Foust says he looks forward to the day when the Medical Alumni Association will achieve comparable statistics. Having reached its 1991-92 dollar goal, the Loyalty Fund seeks $350,000 for 1992-93 So far, $195,000 has been contributed.

Gifts and pledges to the Loyalty Fund received through June 30, 1995, will be credited toward the School of Medicine's $47 million portion of the UNC Bicentennial Campaign. The Bicentennial Campaign for Carolina, which began July 1, 1989, has a goal of $320 million.

"The School of Medicine and its alumni are important parts of the entire UNC family," Foust said. "I, like many other alumni, am grateful for the opportunities this school has afforded me. All of us are asked to contribute to various things — school, church, the United Way — but we give to things to which we have loyalty. I wouldn't be able to contribute to any of those without what this school has afforded me. I just believe that many alumni feel the same way."

# News Briefs

## Teamwork Engenders Cystic Fibrosis Mouse Model

After more than two years of intense research, scientists at the UNC School of Medicine recently created the first animal model for cystic fibrosis.

"By purposefully changing the genes of mice, the team of researchers here developed the first mouse ever with cystic fibrosis, a mouse suitable for testing potential treatments for this often fatal disease," said Dean Stuart Bondurant, M.D. According to the researchers involved, the mice could speed up by a factor of 10 the testing of possible cures for cystic fibrosis—the most common, potentially fatal genetic disease in North America.

The work underlying this development began nearly two decades ago, when the School of Medicine started to assemble the team of investigators from various disciplines, who would work in "elegant harmony" to be the first to create such a model, Bondurant said.

Although the disciplines are as diverse as pathology and clinical medicine, "each investigator made an essential contribution to the solution of the problem," Bondurant said. "The fundamental factor underlying the creation of these mice is the brilliance and dedication of the individual investigators."

The egalitarian atmosphere at the School of Medicine is the key to the success of this research, according to Richard Boucher, M.D., professor of medicine and director of UNC Center for Cystic Fibrosis and Airway Diseases. "The advent of centers at the School of Medicine has allowed interdisciplinary work. In the cystic fibrosis center, people from fields as diverse as physiology, pathology and biochemistry, as well as other departments, all work together. Also integrated into this team are the superb clinicians, who can take a concept quickly from the bench to man."

Some of the other key players in the creation of the mice are: Beverly Koller, Ph.D., research assistant professor of medicine, John Snowuaert, Ph.D., postdoctoral research associate of medicine, Nadia N. Malouf, M.D., professor of pathology, Oliver Smithies, D. Phil., professor of pathology, and research assistants Kristen K. Brigman and Anne M. Latour.

The development of the mice took "an

Photo by Paul Dagys

*Barbara Grubb, Ph.D., research assistant professor of pulmonary medicine, uses the nasal potential difference test to determine whether this mouse has cystic fibrosis. Doctors use the same test on children.*

incredible amount of work and dedication by Dr. Beverly Koller, and faith by the dean, the School of Medicine, the National Institutes of Health and the Cystic Fibrosis Foundation that the project would work," Boucher said. "This is a dream come true for CF researchers. We now have an animal model in which we can test new therapies for cystic fibrosis in a fast, thorough and safe manner."

An inherited disease, cystic fibrosis causes chronic respiratory and digestive problems. Sticky mucus accumulates in the lungs, resulting in severe infections and premature death. This mucus also prevents digestive enzymes from reaching the intestines, hindering digestion.

After the gene for the majority of cystic fibrosis cases was discovered in 1989, the possibility of genetically engineering these mice became a reality. Using a technique called gene targeting, which was pioneered by Smithies, the UNC investigators altered the corresponding mouse gene.

While developing the mice is notable in and of itself, an additional feature makes these mice even more noteworthy. The researchers, the university and the Cystic Fibrosis Foundation together decided against seeking a patent on the mice and turned down the opportunity for financial gain.

"The decision by the School of Medicine not to attempt to patent this new genetic model derived from a strong sense that the model should be available in the public domain, so that investigators throughout the country and world can utilize it in their efforts to improve approaches to patients with cystic fibrosis, where the need is so great," Bondurant said.

"We chose to not patent the mice because we wanted everyone to have equal access to them for less cost," Boucher explained. The mice will be bred and offered worldwide through Jackson Laboratories in Bar Harbor, ME.

"Part of the decision to not patent the mice was the hope of producing a speedier cure for cystic fibrosis. We believe that the mice will receive more widespread use without a patent then they could with a patent. The loss of any money that the university would have received would not be enough to compensate for the value and importance of speedy and widespread dissemination throughout the world," Bondurant said.

"This is a generous and sensible decision, one that reflects the historic commitment of the School of Medicine and the university to service," he added.

*Norma Berryhill joins George Johnson Jr., M.D., Roscoe Bennett Gray Cowper Professor of Surgery, after he presented the 1992 Berryhill Lecture entitled, "Norma Connell Berryhill: A North Carolina Treasure."*

## Genetically Engineered Mice Will Aid in Heart Studies

Two months after the announcement about the development of cystic fibrosis mice, another team of UNC researchers used gene targeting to create a mouse model of atherosclerosis.

The second type of mice provides the first practical model of atherosclerosis and will enable investigators to study how fats in the blood clog arteries. "These mice collapse 40 years of human development into four months," said Oliver Smithies, D. Phil., professor of pathology.

Although not directly involved in this research, Smithies developed the gene targeting technique that led to the creation of the mice. Nobuyo Maeda, Ph.D., associate professor of pathology, member of the Curriculum in Genetics and the Program in Molecular Biology and Biotechnology, was the lead investigator on the project. The other investigators were Robert L. Reddick, M.D., Kenneth Brinkhous Distinguished Professor of Pathology and Sunny H. Zhang, a graduate student in pathology from China.

The mice lack the gene that makes the protein apolipoprotein E. Without it, cholesterol and other fats accumulate in their blood

# News Briefs

to five-times normal levels. This build-up is deposited along artery walls, the same as it happens in humans.

According to the scientists, "Ultimately the mice will help scientists separate what part lifestyle factors, such as diet, exercise and environment, and genetic factors play in the most common arterial disease."

## Oregon Health Plan Outlined: A Process For Change

John Kitzhaber, M.D., president of the Oregon State Senate and an architect of Oregon's controversial health care reform plan, outlined the evolution of the Oregon Plan in a recent lecture at the UNC School of Medicine.

In his presentation, "A Coalition for Change: Reshaping America's Health Future," Kitzhaber, the 1992 Merrimon Lecturer, emphasized that the importance of the Oregon Health Plan lies not in the specifics of the plan, but rather in the process that has allowed his state to turn theory into practice.

That process, according to Kitzhaber, involved a number of steps that guided the Oregon legislature toward a clearly specified, widely shared policy objective, which lawmakers concluded should be "health."

"To ensure that everyone remain focused on the policy objective of health and to make certain that focus transcended interest groups' narrow concerns, we established consensus on a number of principles that would guide incremental steps necessary to achieve our reform," Kitzhaber said.

Among these principles was the belief that all citizens should have universal access to a basic level of health care. Additionally, he said they agreed that there must be a process by which a basic level of care is instituted.

Kitzhaber graduated from medical school at the University of Oregon in 1973, and began an emergency/urgent care medicine practice in Oregon. He was elected to the Oregon House of Representatives in 1978

*John Kitzhaber, M.D.*

and then to the Oregon State Senate in 1980. He is now completing his third four-year term and has served as president of the Senate since 1985.

"By guaranteeing virtually everyone in the state access to the health care system, we fundamentally shifted the debate from who is covered to what is covered," Kitzhaber added. "And to answer that question, we established the Health Services Commission."

The Health Services Commission, an 11-member body appointed by the governor and approved by the Senate, is composed of five primary care physicians, a public health nurse, a social worker and four consumers.

"This commission was charged with prioritizing health services based on a consideration of clinical effectiveness and social values," Kitzhaber said.

To determine clinical effectiveness, the commission utilized more than 7,000 hours of volunteer time given by Oregon physicians who provided information within their areas of specialty.

By holding 47 town hall meetings across Oregon, the commission was also able to get a broad-based public consensus on the social values that citizens felt should underlie public resource allocation policies.

On February 21, 1991, after 18 months of working, the initial priority list was produced, and according to Kitzhaber, a bill was then passed to prohibit legislators from reordering the priorities established by the Health Services Commission.

"We wanted the process to be apolitical and objective and involve the marriage between clinicians and the general public," Kitzhaber said.

As a result, the legislature was forced to simply make resource allocation decisions, which Kitzhaber said involved starting at the top of the priority list and applying the available revenue.

"The resulting benefit package has a very heavy emphasis on primary and preventive care," Kitzhaber said. "It covers the initial evaluation and diagnosis, and covers virtually all Medicaid mandates, including all preventive screening services."

In addition, the package covers a number of services that are not required by Medicaid including dental services, Hospice care, prescription drugs, physicals, mammograms, most transplants, physical therapy and occupational therapy.

The process for this change in Oregon has been long, and according to Kitzhaber the road to national health reform should prove to be long as well.

"Wholesale reform is not going to emerge in a single session of Congress or in a single administration," Kitzhaber said. "But I do believe that together we can solve this crisis of health care. And to do that is going to require unprecedented involvement and leadership of health professionals.

"Physicians, in particular, must recognize that they can no longer practice in splendid isolation, deluding themselves into believing that what they do for the individual patient has no bearing whatsoever on the well-being of others."

## UNC Awarded Major Cancer Grant

Hoping to reduce the death toll from breast cancer, the National Cancer Institute has designated the UNC Lineberger Comprehensive Cancer Center as one of four breast cancer Specialized Programs of Research Excellence (SPOREs) across the United States.

The award to the UNC School of Medicine will provide $6 million to the cancer center and investigators from the Schools of Medicine and Public Health over the next three years for a variety of research and outreach programs. Special emphasis will be placed on prevention and cures for minority women.

"This program will bring together a large number of talented and dedicated people who not only will advance knowledge and understanding of cancer, but who will translate that knowledge quickly for the benefit of patients," said Dean Stuart Bondurant, M.D.

"This SPORE is the culmination of the cancer center's efforts to build a breast cancer research program in North Carolina that is second to none," said Joseph S. Pagano, M.D., professor of medicine and director of the Lineberger Center.

Edison Liu, M.D, assistant professor of medicine and principal investigator for the grant, said, "Our major goal is to understand the origins of breast cancer and to see if we can reduce mortality and morbidity in North Carolina."

## Innovative Treatments For Ovarian Cancer Tested at UNC Hospitals

Investigators at the UNC School of Medicine and physicians at UNC Hospitals are mounting a multi-pronged attack on ovarian cancer—the fourth most common cancer following breast, lung and colorectal—from the laboratory bench to clinical trials.

At the UNC medical center, where 40 to 45 women with ovarian cancer are treated each year, several novel therapies are being tested. Information on these therapies as well as other research topics relating to ovarian cancer were presented to 111 participants of the conference "Ovarian Cancer: Present and Future Directions in Clinical Management," which was held in conjunction with UNC School of Medicine's Fall Alumni Weekend in October.

"The results of these studies and other protocols being conducted here could alter the way we treat ovarian cancer in the future," said David H. Moore, M.D., assistant professor in gynecologic oncology.

## Reynolds Receives University Award

UNC School of Medicine alumnus Frank R. Reynolds, M.D., a pediatrician from Wilmington, was among five UNC alumni selected to receive a UNC Distinguished Alumna and Alumnus Award. Presented on University Day in October, the award goes to alumni who have "distinguished themselves in a manner that brought credit to the university."

*Reynolds*

Reynolds helped pioneer the North Carolina Area Health Education Center (AHEC) Program, which is based at UNC and operates in affiliation with health education centers and community hospitals from nine sites statewide. Launched in 1972 and now considered a national model, AHEC provides clinical training for students and continuing education and other services for professionals.

His 40-year career in private practice has focused on children with special health care needs. During the polio epidemic of the late 1940s, he worked with children in "iron lungs." Indigent families have benefited from his work as chair of the New Hanover County Board of Health and as a consultant to the county health department.

Reynolds has been honored with the UNC School of Medicine's Distinguished Service Award and the N.C. Public Health Association's Maternal and Child Health Section Award for Outstanding Leadership.

A former chief of staff at four Wilmington hospitals, he has provided leadership to the N.C. Medical Society as president and the American Academy of Pediatrics as a district chairman.

Before graduating from the University of Pennsylvania's medical school, Reynolds earned an undergraduate degree and a certificate in medicine from UNC in 1941 and 1943, respectively.

## Accolade for AHEC

James O. Mason, M.D., Dr.P.H., assistant secretary for health, Department of Health and Human Services in the Bush Administration, visited with administrators and students in the North Carolina Area Health Education Centers Program recently. He went away impressed. In a letter to Dean Stuart Bondurant, M.D., Mason said "...the experience made it easy to understand why North Carolina is so often cited as a model program.

"Your efforts...are exemplary...I hope your faculty and alumni all have the opportunity to see the AHEC the same way I did—from a community perspective. It helped me gain an appreciation of what valuable bridges can be built between 'town and gown' with clear leadership from the university."

# Faculty Notes

## Bondurant Named Chair-Elect of AAMC

**Stuart Bondurant, M.D.,** dean of the School of Medicine, was named chair-elect of the Association of American Medical Colleges (AAMC) at its 103rd annual meeting in New Orleans in November.

Bondurant, who will be installed as chair this year, has been active in the AAMC for 15 years. He served as chair of the AAMC Council of Deans from 1979 to 1981 and was chair of the organization's Task Force on Medical Education from 1977 to 1979.

The AAMC represents the 126 U.S. and 16 Canadian accredited medical schools; 400 major teaching hospitals, including 70 Department of Veterans Affairs medical centers; 90 academic and professional societies, which represent 70,000 faculty members; and the nation's medical students and residents.

Bondurant came to Chapel Hill in 1979 as dean of the UNC School of Medicine and professor of medicine. A native of Winston-Salem, he received his medical degree from Duke University in 1953. His medical training included an internship and residency at Duke Hospital and a senior residency in medicine at the Peter Bent Brigham Hospital in Boston.

During his career, Bondurant has served as an officer of many organizations and societies, including president of the American College of Physicians and the Association of American Physicians. He currently is chair of the Governor's Commission on Reduction of Infant Mortality and a member of the Board of Directors of the North Carolina Biotechnology Center. In 1992, be became vice chair of the Institute of Medicine Council.

## UNC Ambulatory Care Program Directors Named

**Alfred R. Hansen, M.D.,** professor of emergency medicine, has been named medical director of the UNC Ambulatory Care Program, and **Marlene Rifkin,** formerly assistant vice president for clinical practices at the University of Miami, has been named administrative director.

*Hansen*

The appointments were announced by Stanley Mandel, M.D., associate dean for clinical affairs in the School of Medicine and chief of staff at UNC Hospitals.

UNC's outpatient care activities include 160 clinics that care for about 150,000 patient visits a year. Outpatient clinics are located in the medical center's new $20 million Ambulatory Care Center, in UNC Hospitals and at several other locations on campus, in Chapel Hill and in nearby communities.

*Rifkin*

"Dr. Hansen is immensely qualified and will provide the leadership for UNC Hospitals and the UNC School of Medicine to help us meet the ambulatory care challenges of the future," Mandel said. "Ms. Rifkin is a senior hospital administrator with many years experience and a strong background in quality services and quality assurance and we are, indeed, fortunate to have her join our staff."

Hansen earned his medical degree from the University of Iowa in 1977. He completed residency training in the Department of Family Medicine at UNC, and a fellowship in the UNC Department of Surgery. He also received master's and doctorate degrees in pharmacology from the University of Iowa.

Rifkin graduated from Ohio State University and holds a master's degree in management from Florida International University.

## Suzuki Receives 2nd Prestigious Javits Award

**Kunihiko Suzuki, M.D.,** director of the Brain and Development Research Center, and professor of neurology and psychiatry, recently received his second Jakob K. Javits Neuroscience Investigator Award from the National Institute of Neurological Disorders and Stroke (NINDS) of the National Institutes of Health.

Suzuki and his colleagues are exploring the molecular genetics, enzymatic reaction mechanisms and pathogenesis of genetic diseases of the brain, which progressively and fatally affect infants and young children. The award includes a special seven-year research grant with funding of more than $1.5 million.

"Being honored with his first Javits award in 1985, and now this rare second consecutive award, Dr. Suzuki demonstrates his continuing research productivity in the field of biochemical and molecular genetic investigations of inherited metabolic disorders of the brain, such as Tay-Sachs disease," said Dean Stuart Bondurant, M.D.

"Dr. Suzuki is an excellent investigator with an international reputation in the field of devastating neurological disorders involving abnormal brain lipid metabolism. This second prestigious honor recognizes the outstanding work that he has done."

Suzuki, who trained to be a clinical neurologist, began his research in 1963.

In the 1980s, Suzuki and other investigators shifted emphasis to molecular biological studies when the technology became available to directly look at the genes responsible for many of these disorders.

Currently, Suzuki is working with Brian Popko, Ph.D., assistant professor of biochemistry and biophysics, to make animal models of some of these disorders in con-

sultation with Oliver Smithies, D. Phil., professor of pathology, and Nobuyo Maeda, Ph.D., associate professor of pathology.

The Javits Awards are given to investigators who have demonstrated consistent productivity of the highest quality during their research careers, and who, in the judgment of the NINDS Council, are expected to continue their high-caliber research, Bondurant said.

Two other BDRC research scientists hold Javits Awards, Pierre Morell, Ph.D., professor of biochemistry and biophysics (1987-1994) and Kinuko Suzuki, M.D., professor of pathology (1989-1996).

## Bernard Receives 1992 Fuller Award

**Stephen Bernard, M.D.,** associate professor of medicine and director of the hematology/oncology clinic at UNC Hospitals, was named the recipient of the 1992 H. Fleming Fuller Award.

*Bernard*

The Fuller Award recognizes a member of the medical staff each year who demonstrates the qualities of Fuller's lifelong dedication to patient care, teaching and community service. Fuller, a Kinston physician, was a founding member of the Board of Directors of North Carolina Memorial Hospital and served from 1971 until his death in 1986. Fuller Award recipients are nominated by physicians and employees at the UNC medical center and selected by a special panel.

According to Eric B. Munson, executive director of UNC Hospitals, "Dr. Bernard is firmly committed to his patients and their families. Because of his unselfish dedication, he has earned respect from his peers that is unsurpassed."

"Dr. Bernard is clearly one of a select group of UNC physicians who are constantly sought out by other physicians for advice on the most challenging clinical problems," said Joel Tepper, M.D., chair of the Department of Radiation Oncology.

He "listens to his patients and their families, is kind and never in a hurry, and he always instills in his patients feelings of respect, confidence, compassion and hope," said Edward A. Norfleet, M.D., professor of anesthesiology.

Bernard is a native of High Point and a graduate of the UNC School of Medicine. He came to UNC as an instructor of medicine in 1981, became an assistant professor of medicine in 1985 and was named associate professor of medicine in 1990. He also served as director of the Hematology/Oncology course for medical students for the last 10 years.

**W. Thomas Lawrence, M.D.,** associate professor of surgery, has been named chief of the Division of Plastic and Reconstructive Surgery. He joined the Department of Surgery in 1985 and has directed the Plastic Surgery Residency Program since 1990.

*Lawrence*

"We are delighted Dr. Lawrence has accepted this challenging position," said George F. Sheldon, M.D., chair of the Department of Surgery. "I have every confidence that under his leadership an already outstanding program will flourish and reach even greater heights of excellence."

A graduate of Yale University, Lawrence earned his medical degree from the University of Virginia and later earned a master's degree in public health from Harvard.

**Stanley R. Mandel, M.D.,** associate dean for clinical affairs and professor of surgery was elected vice president of the North Carolina chapter of the American College of Surgeons. He will be named president in 1994.

Mandel also serves as chief of staff for UNC Hospitals. He is a surgical authority on kidney diseases and has headed the Hospitals' Renal Transplant program since 1970. He is a past president of the Southeastern Organ Procurement Foundation and the Carolina Organ Procurement Agency.

Mandel earned his medical degree from the University of Virginia at Charlottesville.

**Robert Sandler, M.D.,** associate professor of digestive diseases, has been named director of the Center for Gastrointestinal Biology and Disease.

*Sandler*

"We are very fortunate that Dr. Sandler will be directing this center," said P. Frederick Sparling, M.D., chair of the Department of Medicine. "Sandler is an excellent researcher and teacher and is well-respected in his field."

Sandler joined the UNC medical school faculty in 1981 as a clinical instructor of medicine in the Department of Medicine. He earned his medical degree from Yale University School of Medicine in 1975 and his master's in public health from UNC in 1982.

# A Salute To Our Donors

The following pages of the *Medical Alumni Bulletin* acknowledge the generosity and important support contributed by alumni during the period of July 1,1991, through June 30, 1992. This report identifies the nearly 1,400 individual alumni who made gifts to benefit the School of Medicine. Of this number, 455 individuals increased their contributions over the prior year, and 316 made gifts for the first time.

The Loyalty Fund contributors are those who made unrestricted gifts to the School of Medicine. In the past four fiscal years, this support has increased more than 500 percent and today totals $332,000. Twenty-six percent of all M.D. graduates gave to the Loyalty Fund, and 174 graduates are recognized as Loyalty Fund Associates, having contributed more than $1,000. When alumni giving to restricted programs of medical education and research are added to the unrestricted gifts to the Loyalty Fund, the total approaches $1 million.

Those of us who work with The Medical Foundation and the alumni programs, including Dean Stuart Bondurant, Dr. William Easterling, Stephanie Stadler, Jane McNeer and Ed Crowder, are all pleased with the growth of participation and support. Great credit goes to Dr. John Foust, Class of 1955, the Loyalty Fund National Chairman, and the countless number of individual graduates who invested the time and effort to call on other alumni and encourage their involvement and contributions. This is really a report of the fruits of their work.

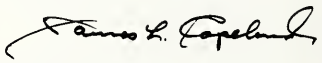
Although we always recite numbers and dollars when reporting alumni support, the real substance is the opportunities this support provides for advancing the School of Medicine, its students and faculty. Alumni gifts this year supported individual departments and divisions, recognized distinguished teachers, provided equipment and research support for nearly every area of medicine and established scholarships for students.

The Loyalty Fund unrestricted contributions assisted with:

- Loyalty Merit Awards to honor students in each class.
- Publication of the *Medical Alumni Bulletin,* which improves each issue.
- Support for the Whitehead Society with funds it distributes to other student organizations within the School of Medicine.
- Publication of the student research journal *FAX.*
- Continuing the Distinguished Service Awards Program recognizing alumni, faculty and others.
- Encouraging faculty and student interaction through activities to celebrate commencement and programs to help students better understand medical practice alternatives.
- Adding a dimension of Arts and Humanities programs into the extracurricular time of students, faculty and staff.
- Funding a direct grant to the Health Affairs Library in recognition of its key role in the educational process.

Those are just some of the many programs. It is clear that what you and other graduates are doing does make a difference day-to-day in the mission of the university and School of Medicine.

This report acknowledges alumni giving, but I also want to note the importance of you and each individual graduate regardless of your financial commitments during the past fiscal year. You, in your practice of medicine and in your work throughout your community, carry the reputation of the University of North Carolina at Chapel Hill School of Medicine. The quality of your work reflects highly upon the medical school and has a positive effect upon the perceptions and feelings of others throughout the state and nation. We are proud of our graduates, and all that you do that reflects so well upon our programs.



James L. Copeland
Executive Director
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## Honor Roll of Donors

Donors are located by class in alphabetical order. Those contributors who gave $1,000 or more have been designated by their names in bold print. Those contributors who gave $10,000 or more have been designated by their names in italics, bold print.

The Foundation has made every attempt to ensure the accuracy of this report. We apologize in advance for any omissions that may have occurred. If you have questions, please call The Medical Foundation at (800) 962-2543.

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*His daughter, Julia, and wife, Irene, join James H. Scatliff, M.D., professor and chair emeritus of radiology, at the dedication of UNC Hospitals' newest magnetic resonance imaging center. The 5,200 square-foot James H. Scatliff MRI Center is located on the ground floor and will provide state-of-the-art imaging for both inpatients and outpatients. "This new facility serves as a reminder of Dr. Scatliff's dedication and loyal service to the university and to UNC Hospitals," said Eric B. Munson, executive director of UNC Hospitals.*

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# Class Notes

## Let Us Hear From You

I want to keep in touch with my classmates. Here is my news for the Class Notes section.

Name _____

Degree _____ Year _____

Address _____

City _____ State _____ Zip _____

Position or title _____

News _____

_____

_____

Check if new address ☐ Effective _____

**Paul V. Nolan, M.D. '46,** is retired but serves as chair of the Hamilton County (TN) Commissioners. He and his wife are enjoying five grandchildren.

**R.J. "Jack" Blackley, M.D. '51,** is a consultant with the North Carolina Department of Human Resources. He also is a clinical professor of psychiatry at UNC. He reports that he continues to enjoy golf, traveling, yard work, marriage, his children and grandchildren.

## 50s

**Robert A. Watson, M.D. '53,** recently retired from active family practice in Elon College after 38 years. He reports that these are "happy days."

[illegible] Pediatrics.

**Dean Wilson, M.D. '72,** is president of the Neurological Association of Johnson City, TN, which he established in 1981.

**David A. Rockwell, M.D. '74,** is secretary of the North Carolina Orthopaedic Association. He reports that he looks forward to his class' 20th reunion.

**Kenneth H. Wilson, M.D. '74,** is an associate professor of medicine in the Department of Infectious Disease at Duke University. He and his wife, Joanne A. Peebles Wilson, M.D., have been researching the bacterium responsible for Whipple's Disease. They live in Chapel Hill with their three children.

[illegible] Center in Bethesda, MD, where he lives with his wife and three daughters. A commander in the U.S. Navy Medical Corps, he recently completed his anesthesia residency at the University of Pennsylvania.

**Nanetta B. Lowe-Roache, M.D. '81,** lives with her husband and two children in Tamuning, Guam. She is chair of the F.H.P. Department of Surgery and enjoys scuba diving.

**William Winkenwerder Jr., M.D. '81,** has been named vice president of medical services and regional medical director for Prudential's Southern Group Operations.

**Beverly N. Jones, M.D. '82,** recently completed his psychiatry residency at Johns Hopkins University. He is beginning his

**D. '77,** is in pri-
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Federation for

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Bowman Gray
ston-Salem.

**'78,** is an emer-
Baptist Medical
cal director of
, the only medi-
tlanta. He also
arried in May.

**orth, M.D. '80,**
the Department
l Naval Medical

# Class Notes

second year in a fellowship there in dementia and aging.

**Dianne L. Zwicke, M.D. '82,** was elected to the board of governors of the American Heart Association of Wisconsin. She is medical director of cardiac critical care services and is an assistant professor of medicine at the University of Wisconsin School of Medicine.

**Penny Williams, M.D. '83,** is an assistant professor in the Department of Infectious Disease at the University of Pittsburgh. She reports that she and **Mary Chester Morgan, M.D. '83,** who is an assistant professor of rheumatology, have next-door offices.

**Ron E. Pruitt, M.D. '84,** was elected a fellow of the American College of Physicians. He is a member of the Tennessee Medical Association and the Nashville Academy of Medicine.

**Albert R. Munn III, M.D. '85,** reports that he is in his third year of ophthalmology practice at Raleigh Ophthalmology and Surgical Eye Associates. He and two other doctors recently reopened the Wake Medical Center Ophthalmology Clinic for indigent eye care.

**Joseph Tyron Bell, M.D. '86,** was elected to fellowship in the American Academy of Pediatrics. He lives in Talihia, OK, and is certified as a child health specialist.

**Miriam de Lyon, M.D. '87,** reports the birth of her second son in October. She lives in Newbury Park, CA, and is in private practice part-time.

**James Eugene Edwards, M.D. '87,** lives at Folly Beach, SC, and is an instructor at the Medical University of South Carolina.

**David J. Sheridan, M.D. '87,** recently finished his angiography/interventional radiology fellowship at the Cleveland Clinic Foundation. He is a staff radiologist at Richland Memorial Hospital in Columbia, SC.

**Lori L. Davis, M.D. '88,** is an assistant professor at the University of Alabama at Birmingham. Her new job entails directing residency outpatient training and coordinating the psychotherapy curriculum. She reports that she is doing well and is happily married.

**Margie Beazley Eason, M.D. '88,** is a psychiatrist at Saint Albans Hospital in Martinsville, VA. She recently completed psychiatry residency at North Carolina Baptist Hospital. She and her husband, **Paul Richard Eason, M.D. '88,** have a 2-year-old daughter.

**Michael E. Lee, M.D. '88,** is a second-year fellow in hematology-oncology at Duke University. He and his wife have a 1-year-old daughter.

## 90s

**Mark T. Sakata, M.S. '90,** recently began work at the University of Washington Medical Center in Seattle as a rehabilitation counselor in the Department of Rehabilitation Medicine. He lives in Woodinville.

**Susan R. Mahanes, M.S. '91,** is a clinical audiologist in Jacksonville.

# Deaths

## Professor Emeritus Bennett Dead at 81

**H. Stanley Bennett, M.D.,** Sara Graham Kenan Professor Emeritus of Anatomy, died in August after a long illness. He was 81.

Bennett was among the first to discover a system of membranes in muscles that control muscle contraction. He also did extensive research in the field of contraception.

Bennett joined the UNC School of Medicine faculty as a Kenan Professor in 1969. He chaired the Department of Cell Biology and Anatomy and served as director of the Laboratories for Reproductive Biology, both from 1969 to 1977. Bennett retired from UNC in 1980.

He was a member of several scientific and professional societies, including the American Association of Anatomists, of which he was president from 1959 to 1960. He received the association's highest honor, the 1988 Henry Gray Award, in recognition of continuous contributions to the organization and the science of anatomy.

*Bennett*

Bennett also served on the President's Science Advisory Committee during the Kennedy and Johnson administrations and as a member of NASA's Space Science and Technology Advisory Committee from 1964 to 1970. A native of Tottori, Japan, he also served on the U.S.-Japan Committee on Scientific Cooperation from 1964-1976, and was the American co-chair from 1968 to 1976. Bennett also served as a naval physician during World War II and was later awarded the Legion of Merit in 1945 by the U.S. Navy.

He is survived by his wife, Alice R. Bennett of Haverford, PA; three daughters, Edith B. Page of Arlington, VA; Anna B. McNaught of Baltimore, MD; and Patience B. Berkman of Boston; a son, Henry J. Bennett of Evanston, IL; and 12 grandchildren.

Memorial contributions may be made to the Prostate Cancer Research Program at the UNC Lineberger Comprehensive Cancer Center.

**Clement T. Monroe, M.D. '21**
**Lewis M. McKee, M.D. '31**
**James C. Peele, M.D. '35**
**Sydenham B. Alexander, M.D. '43**
**Littleton J. Bunch, M.D. '45**
**Robert G. Fitzgerald, M.D. '45**
**Leslie S. Massad, HS '59**

# President's Letter

Fall Medical Alumni Weekend was a huge success. The symposium on ovarian carcinoma was well received, with more than 100 registrants participating. The social before the UNC-Virginia game was held at our new Ambulatory Care Center. As we know, this facility has been long awaited and much needed, and we can be proud of this outgrowth. The new complex is transforming the sometimes chaotic face of the present hospital into a smooth, hassle-free environment, and opened in December.

I hope that each of you will consider the appeal for participation as an Associate of the Loyalty Fund. Our goal is to increase the Associates to more than 200 members this year, and I would challenge each of you to increase your level of giving to an annual gift of $1,000 to support the institution which has given you the basic tools to practice medicine. The Dean's discretionary funds are dwindling, and we need to continue and expand present programs funded by the Alumni Association. The UNC School of Medicine will continue to grow and prosper as long as it continues to receive the support of its alumni.

Best wishes, and I hope that 1993 will be a great year for all of you.

Sincerely,

James B. Sloan

*James B. Sloan, M.D. '70*

## Call Carolina Consultation Center for Quick Results

Physicians nationwide may call the Carolina Consultation Center at UNC for speedy consultations and referrals.

By dialing 1-800-862-6264, physicians can reach specially trained staff who will locate the attending staff physician with whom they desire to speak and quickly connect the call. Alumni with questions about CME programs can also reach the Office of Alumni Affairs/Continuing Medical Education through the Consultation Center. The number is in service 24 hours a day, seven days a week.

# CME/Alumni Calendar

| Medical Alumni Activities | | |
|---|---|---|
| April 2-3 | Medical Alumni Weekend | Chapel Hill |
| | **Continuing Education** | |
| February 18-19 | Lectures That Work | Chapel Hill |
| February 26 | First Annual Critical Care Symposium<br>Critical Care 1993: Sepsis and Multiple Organ Failure | Chapel Hill |
| March 11-13 | Carolina Literacy Symposium | Research Triangle Park |
| March 11-13 | Integrating Computers in the Medical Curriculum | Chapel Hill |
| March 17-20 | Internal Medicine Conference | Chapel Hill |
| March 22 | Expert Medical Evaluation in Child Physical and Sexual Abuse: Advances and Controversies | Greensboro |
| March 26 | Update on Bone Marrow Transplantation and New Directions in Growth Factor Use | Chapel Hill |

For more information about CME courses or alumni activities, contact the Office of Continuing Medical Education and Alumni Affairs, School of Medicine, 231 MacNider Building, UNC, Chapel Hill, NC 27599-7000, or call 1-800-862-6264.

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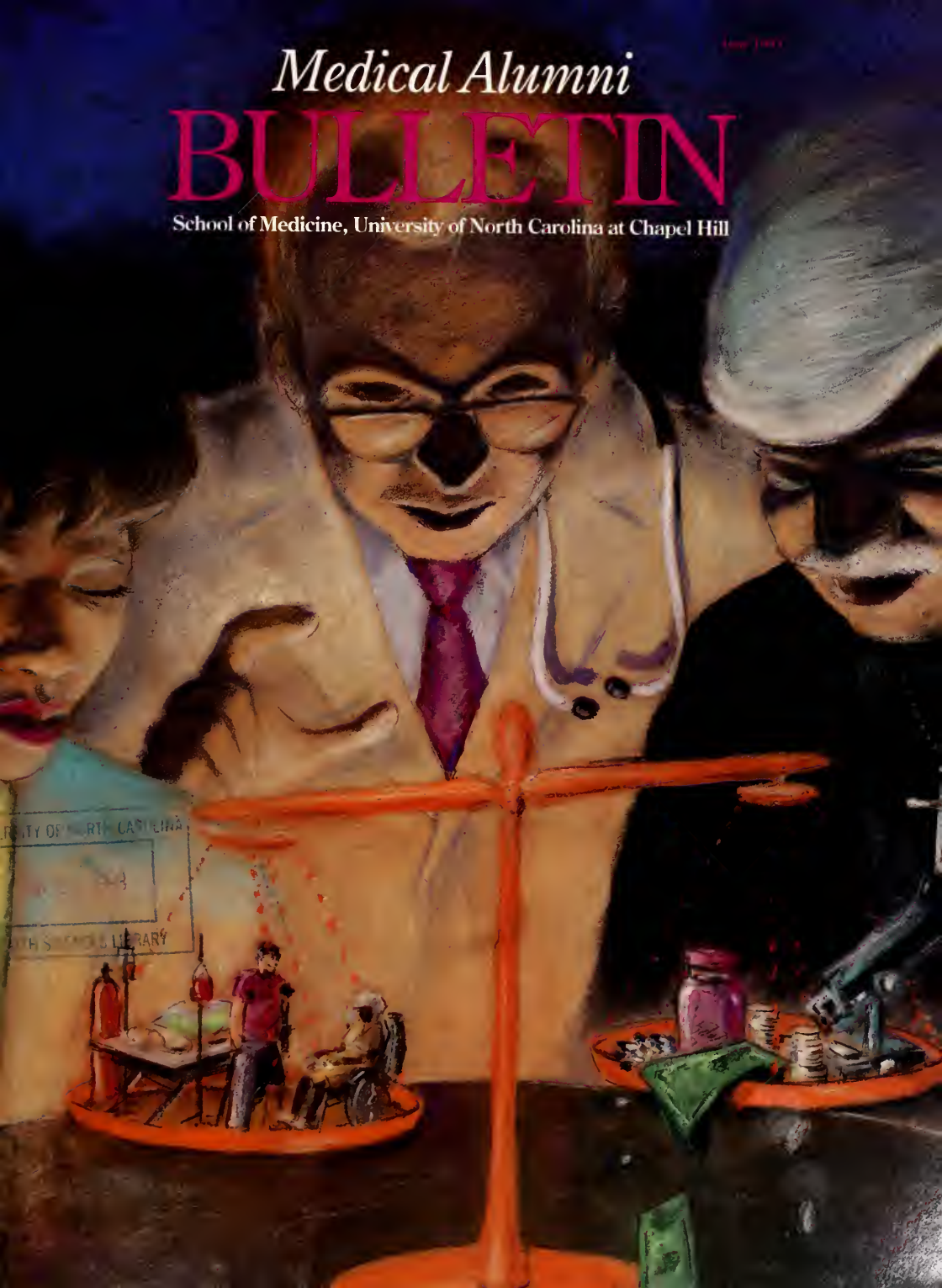
School of Medicine, University of North Carolina at Chapel Hill



# Dean's Page

Many of the events that constitute the life of the School of Medicine are cyclical or periodic in nature. Once in a while, there occurs a singular event that illuminates and may even reorient the school.

The opening of the new Ambulatory Care Center may be such an event.

A great number of people contributed both wisdom and hard work to the happy outcome of an attractive and highly functional building. There will be other times to express appreciation for those essential contributions. I want to use these lines to reflect in a broader sense on the significance of the opening of the Ambulatory Care Center to the School of Medicine.

At one level, the opening of the Ambulatory Care Center reflects simply the need to relieve great overcrowding in the J. Spencer Love Clinics. The Love Clinics were designed in the early 1960s to accommodate a maximum of 150,000 visits per year. With outpatient visits now running in excess of 325,000 per year, that facility was obviously in need of capacity decompression. It had become nearly impossible to provide an acceptable level of superior patient care, patient comfort, and teaching capability in the Love Clinics. Moreover, the crowding was in danger of becoming a negative reflection of the scope and quality of care that our faculty provides.

There is, however, a more profound significance to the opening of the Ambulatory Care Center. It is a significance that reflects change in clinical practice and medical education. It is the reason that the Ambulatory Care Center will be at the heart of the School of Medicine for decades to come.

Hospitals were developed for the efficient application of technology to medical problems. Surgery, radiology and physiological monitoring are examples of technologies that largely originated in hospitals and, to variable degrees, are still largely applied in hospitals. With the accelerating advance of technology and with the acquisition of simpler and more dispersible technologies, an increasing part of medical practice has not required the concentration of technologies represented by the academic medical center hospital. Driven in part, but only in part, by considerations of cost, there has been extensive expansion of the range of health care technologies or interventions that can be applied without hospitalization, often more economically and even more effectively. Thus, the evolution of medical practice has been toward expansion of ambulatory care.

Beyond the foregoing, the institutional commitment to ambulatory care reflects, in my judgment, an altogether healthy recommitment to the care of patients in a teaching setting as a central focus of the institution.

The commitment of the medical school to practice and teach ambulatory care carries several inevitable consequences. Aside from the need for faculty to relocate much of their teaching from the bedside to the outpatient examining room, there are profound consequences for physician-patient interaction.

There is renewed focus on the patient as a human being. While our faculty and students in the Ambulatory Care Center do not see patients in their natural habitats, they are seeing them in a setting that affords much greater personal dignity than does the often depersonalized inpatient hospital setting. Patients remain much more in control of their own environments, and this can change the nature of the medical encounter.

The Ambulatory Care Center is designed and operated to be patient-friendly and supportive while enabling efficient and attractive practice and teaching. It is intended to reflect respect for the patient.

I welcome the addition of the Ambulatory Care Center to our facilities as an expression of the commitment of the school to patient-centered health care of the broadest scope and the highest quality.

Stuart Bondurant

*Stuart Bondurant, Dean*

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**School of Medicine, University of North Carolina at Chapel Hill**



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## Contents


### Cover Story

Applying Ethics to the Changing Face of Medicine *(Illustration by Terry Croom)* ..... 2

### Features

Clerkships Give Students a Glimpse of "Real World" Medicine ..... 5

UNC Department of Biomedical Engineering Celebrates 25 years ..... 8

William Purcell, M.D.: A Model Doctor Who's Also a Model Citizen ..... 11

The Future is Now: A Look at VISTAnet ..... 17

### Departments

Dean's Page ..... Inside Front Cover

Development Notes ..... 19

News Briefs ..... 20

Faculty Notes ..... 27

Class Notes ..... 29

President's Letter ..... Inside Back Cover

Alumni/CME Calendar ..... Back Cover

# To Do No Harm

**By Val Lauder**

Although much has changed about medicine through the centuries — an expanding body of knowledge, a technological revolution — one thing has remained constant: the physician's allegiance to the Hippocratic Oath — to do no harm.

Equally part of the physician's commitment down through the centuries has been the battle to keep death at bay.

"Death has been our enemy," said William E. Easterling Jr., M.D., associate dean of continuing medical education and alumni affairs and professor of obstetrics and gynecology at the University of North Carolina School of Medicine. "We've fought it for years. Physicians were taught that death is the enemy. And you fight it — right to the bitter end."

Today's power to sustain life increasingly pits these two basics of medicine, to do no harm and to prevent death — two lodestars for physicians for more than 2,500 years — against each other.

*William E. Easterling Jr., M.D.*

"We've come almost full circle in our great concern about fighting death," Easterling said. "We've gotten very good at it. We've gotten to the point where, in certain circumstances, and for a time, we can beat it.

"It is usually difficult to predict how long we can keep a given human being alive on machines. It's not always clear, because of the many factors involved, the many variables. But over the last decade, there's been a gradual reordering of the importance of 'quality of life' issues. As a result, we now consider the 'quality of life' in our decision making, whereas in the past, we considered that sustaining life itself was our main concern. Now we recognize and accept that you can be alive and be worse off.

"It's important to look at changes in our society and the science of medicine," Easterling said. "The knowledge explosion and the monumental advances that have been made in technology in the last 10 to 15 years have created situations that we haven't had to deal with in the past. And I think that has caused the medical profession to re-examine its views and the ways in which we make decisions.

"That is appropriate, I think, because in the past, society has tended to deify the physician who knows all and always makes correct decisions.

"We now realize that the striking increase in public and social sophistication, the understanding of the capabilities of medicine these days, the increase in the demand for accountability, all have caused physicians to re-look at the way in which we manage the care of patients. With this comes a whole host of ethical considerations — considerations that we must convey to our medical students.

Clearly, it's not just the dramatic, sometimes headline-making cases in the Intensive Care Unit that bring physicians face to face with decisions that have been labeled "painful" by some, "difficult" by others. It is not surprising then that *The New York Times* reported in August 1990 that "60 percent of the medium- and large-sized hospitals in the country have what they call an ethics committee," and that "some 300 people identify themselves as 'clinical bioethics consultants' — people who are actively involved in ethics consultation in a medical setting. They may be philosophers, doctors, nurses, lawyers or clergy."

To help UNC physicians deal with the "painful" decisions, the "difficult" decisions, a bioethics committee was established at UNC Hospitals in 1987, chaired by Seymour Halleck, M.D., professor of psychiatry. He headed the committee until July 1992, when Marion Danis, M.D., associate professor of medicine, became chair.

Both Halleck and Easterling, who was hospital chief of staff when the committee was established, stressed that the committee is strictly advisory. It is a "resource"

*Larry R. Churchill, Ph.D.*

for physicians. The physician remains in charge and makes all decisions concerning the patient's care.

Larry R. Churchill, Ph.D., chair of the Department of Social Medicine, said, "There's no question that the technological sophistication that we now enjoy has created a number of ethical questions where previously there were none. The potential for intervention — the potential for great harm as well as great good — from pharmaceutical products of all kind, from diagnostic tests and experimental protocols, is certain to create lots of questions of ethics, mostly around harm-benefit issues and about consent, the extent to which patients can be well informed about what the risk of a procedure or treatment might be.

"In one sense the ethics of medicine is fundamentally no different than it has ever been. Built in to the profession of medicine is a moral requirement to seek the good of patients," Churchill said.

"It's more difficult to interpret that now. But I like to approach this in terms of medicine being a profession with a certain kind of moral stance that other professions may not have. And an entrustment of power for the public good is a part of this.

"On one hand," Churchill said, "ethics is far more complicated in medicine than it has ever been. On the other hand, it's exactly the same; medicine is, and always has been, moral at its very core."

The teaching of ethics is one of the charges of the curriculum of the UNC Department of Social Medicine.

"But, it's part of a larger responsibility of the school," Churchill said. "You can't segment it. Everybody has to be, in a certain sense, accountable in the teaching of ethics. But we do it in a more focused way in the pre-clinical years.

"What we do is introduce students to the history of the ethics of their profession. Medical ethics didn't begin with the Tuskegee experiments or thalidomide. It began a long time ago, and is a part of the profession itself." Churchill referred to the Hippocratic Oath as the first Western codification of obligations that physicians took upon themselves.

"Teaching ethics helps students understand that they belong to a tradition that is much older than they imagine — at least 2,500 years old — and that the tradition has changed and developed. It's interesting to look at the similarities and differences between, let's say, the Hippocratic Oath and the American Medical Association's most recent statement of principles in 1980 and see the changes. Or to see that, for example, the Nuremberg Code came out of the Nazi atrocities in medical

# 'Mrs. L Is My Textbook of Ethics'

***Editor's Note:*** *Romulo E. Colindres, M.D., professor of medicine, says medical education involves "blending art, sciences and more," including ethics.*

**By Romulo E. Colindres, M.D.**
**Associate Chair for Medical Education**
**Department of Medicine**

Medicine as an art is difficult to define. I would say that I cannot define it well, but, "I know it when I see it." The definition of the art of medicine that I find to be most complete and to best conform to the reality of medical practice is that *it is the ability or judgment of combining the biological sciences, the social and behavioral sciences and the life experiences in the care of patients.*

This approach recognizes that man is a biological entity with physico-chemical dimensions, a social being, and a person with unique values and meaning, all in one. All three aspects should be attended to in the care of patients. Empathy without good science is not good patient care; nor is it good patient care to apply good science without empathy.

The wisdom and judgment — and I would say, the art — of the physician is in the balancing of the biological, the behavioral and the humanistic approaches in each individual situation.

During the past 10 years we have been providing care for patients with AIDS. The AIDS epidemic has been a tragic and sobering experience, a nightmare of returning to a distant past. A disease that is taking the lives of so many young and talented people, a disease that we can palliate but not yet cure. So much science and technology at our disposal, and yet, we can only win the battles and not the war!

During the early stages of the disease we treat the patient with new medications that may slow the growth of the virus, we use powerful chemotherapeutic drugs to treat our patient's complicated infections (the biological); at the same time, nurses, social workers, volunteers, friends and family help these people to cope with their disease and to continue to function as members of society (the behavioral). And we listen to them and give them encouragement (the humanistic).

As the patient's disease progresses, we have to make difficult decisions and informed judgments about the use of powerful technologies and experimental drugs, while we continue to give support, love and empathy. And — when we reach the limits of the biological, when the person ceases to function as a member of society and death is near — we hold their hands, we give them warmth and we show them that we will not abandon them. This, to me, is an example of the art of medicine, the art that should be practiced in the care of all patients....

It has often been said that it is impossible to formally teach students the practice of humane medicine, that this is taught by the example that teachers provide, by the genuine interest that faculty, residents and staff show in their patients and in the students themselves. I agree with this statement; but too often we forget those who are perhaps our best role models: the spouses, the parents and siblings of our patients.

I introduce you to Mrs. L. She is the mother of a 42-year-old mentally handicapped man who has been on hemodialysis for four years. She has raised and trained her son with great care, dignity and personal sacrifice. He is a kind and gentle person who has reached his full potential in life. When I see Mrs. L. next to her son every Tuesday, Thursday and Saturday, I see in her all of the qualities that a good doctor should have; duty before pleasure, others before self, giving more than receiving,

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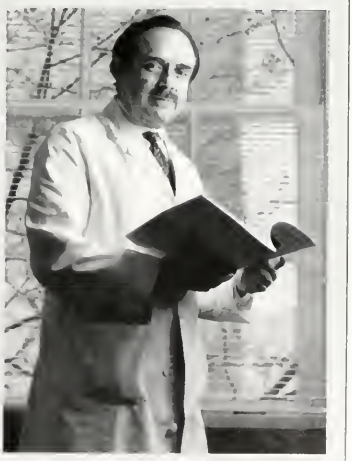


*Romulo E. Colindres, M.D.*

experimentation in World War II, and how that has shaped our subsequent approach to the ethics of research in the West, especially in the United States, in terms of things like informed consent.

"Medicine and Society," a year-long required course for first-year medical students examines how medicine as a profession relates to the larger social and cultural setting. "For example," Churchill said, "we worry not only about ethics, but also about medical economics and patients' perceptions of their illnesses. We send students out into patients' homes to teach them what they wouldn't learn if they saw the patients only in the clinic. The effort of the department, in general, and the course, in particular, is to introduce students to medicine in the larger world.

"We follow up in the second year with a series of semester-long seminars. Students must take one, but they can choose between a dozen or more specialty studies on topics we've introduced in year one, including care of the terminally ill, medical economics, medical history, and issues in aging.

"We cover some of the basic elements of ethics that physicians must know including, informed consent, confidentiality, and familiarization with state statutes and key legal precedents. We also try to help students work through some of the problematic cases and engender a habit of critical reflection."

The teaching of ethics continues into the third year. "Students are very aware of the ethical components of decisions made in the clinical setting. There's a critical intellectual side to ethics, but there's also the important element of good role models. Students see these in the third and fourth years working with senior attending physicians and residents, as the students learn the importance of developing skills in relating to patients.

"It's one thing to determine in a hypothetical case study what may be right or wrong. It's another thing entirely to look a patient in the eye, the family crying in the background, and try to negotiate a decision about continuing or withdrawing treatment," Churchill said.

"Most certainly there were fewer ethical dilemmas in the past," he said. "But it is also true that the ethics of medicine becomes an especially acute matter only in a certain kind of cultural environment, only in the context of patients who can speak their own values and will have a say in what is done to or for them.

"Prior to that, when medical paternalism was the dominant ethic, the doctor said, 'Here's what we're going to do.' The patient was passive, and the doctor simply made the decision. There wasn't the same kind of tension around how you negotiate a course of action that must be owned and affirmed by both the physician and the patient.

"I think we'd be horrified if we applied contemporary ethical standards to the past. But an egalitarian culture that is keen on protecting the rights of patients is going to be very sensitized to problems that were always there, but that may seem egregious now because we're attuned to them," Churchill said.

Still, things are possible today that were not possible before. Whatever technology is needed is used to keep people alive in an emergency; to keep the body organs functioning; to buy time. When the emergency has passed, however, if the body organs are not able to function alone, if the quality of life is not there — physicians are faced with a dilemma.

"What we're aiming for is a question of getting control over the appropriate use of technologies, as opposed to either embracing them wholeheartedly and uncritically, or, on the other hand, going back to a time none of us wants to live in," Churchill said.

"And that's a delicate point to try to reach — where you're controlling the technology for meaningful human purposes and ends, as opposed to being victimized by it."

To do no harm.

*(continued from page 3)*

dedication, self-sacrifice without self-pity, love, courage, loyalty.

She is my textbook of ethics; she is what I strive to be. Yes, our patients and their relatives are also our teachers, and I am sure that every clinician has a similar story to tell.

Skills, attitudes and values that are not always explicitly represented in the written curriculum and do not clearly fall in the category of science or art. They are part of what might be called the covert curriculum. Most important among these is the perception that students derive about how scientists, physicians and other health workers view their mission, how they relate to each other and how they organize themselves to achieve the task of medicine and the task of science.

The AIDS epidemic is one part of this covert curriculum. This disease can be an unforgettable teacher.

Resident physicians and their preceptors from all the clinical departments are taking care of gravely ill patients with AIDS at all hours of the day and night. They have come to understand this disease as much as it can be understood; they have mastered sophisticated technologies. They know the biology of organisms that just a few years ago were relegated to the fine print of textbooks. They know the pharmacology of drugs that did not exist a few months ago. They suffer emotional wear and tear from seeing so many people of their own age die, and yet, somehow, they have the time and energy left to study, to listen and console.

Remember these residents when you hear about how physicians have become detached from their patients because of selfish interests. Cold science and technology, it is claimed, have replaced the warm patient-physician relationship, and perhaps there is some truth to this. But not enough has been written about the truly heroic young physicians, the residents, here and elsewhere, who have joined in the war against AIDS. The message and values that they transmit about service, about the need for continuing study and about humanism, may be more important than any component of the written curriculum.

The biomedical scientists involved in the battle against AIDS have also sent students a powerful message about the value of noticing and following up on even the smallest details in science, about the power of the "new biology" and about resolve and determination. They are working very hard, trying to find the answer to this disease.

The message for teachers is clear. We must continue to show commitment, to make courageous decisions and to put heart and mind together in the fulfillment of our task. To ensure that this altruism is not lost when our students and residents leave here, we must look beyond our walls, and we must remain involved in efforts for support for education, funding for research and promoting a health care delivery system that espouses the values that we hold so dear.

The beauty of medicine is in serving: in giving more than receiving. In knowing that even the least of us has so much to offer, so much to give, so much to share. This profession demands dedication. There are times of great exhilaration and supreme self-confidence but also times of despair and self-doubt. Yet all of this is overshadowed by the excitement of being even a small part of the great advances of medicine, by knowing that what I cannot do alone I can do with the help of others.

(From Dr. Colindres' Whitehead Lecture in 1991.)

# Learning about Medicine In the 'Real World'

**By Beverly B. Thompson**

Five years ago, Lisa Wang, a fourth-year medical student at the University of North Carolina School of Medicine, would have been standing at the foot of a hospital bed watching an attending physician perform a physical examination of a patient. Today, she is going to a private pediatric practice to learn in a setting that she says gives her "real world experience."

Through a network of about 100 physicians located throughout North Carolina, Wang and other third- and fourth-year medical students are being exposed to the "real world" of primary care in North Carolina. The students are taking courses that are part of a calculated move that began at UNC about two years ago to shift clinical teaching from the hospital bedside to the ambulatory care setting.

Exposure to "real world" medicine, or outpatient medical care, is what the nation's medical schools are attempting to provide as they prepare medical students for the 21st century, said William Mattern, M.D., associate dean for academic affairs at the UNC School of Medicine.

"The inpatient services of the nation's teaching hospitals traditionally have been the sites for clinical education of medical students and residents," Mattern said. You'd see the attending physician in his teaching role, perhaps standing outside of the patient's room with a group of students or residents. Now, several factors conspire to make inpatient settings less ideal for teaching and learning, thereby creating a need to expand clinical training further into the ambulatory setting. Two years ago, we began to take steps to implement changes in the clinical curriculum to shift teaching into an outpatient setting."

Besides a new, required ambulatory care selective for fourth-year students, the School of Medicine has introduced or extended an array of outpatient experiences for medical students, including: a four-week family medicine clerkship for third-year students; the third-year pediatric clerkship which was extended from six to eight weeks, with the additional two weeks spent entirely in outpatient settings; the third-year Department of Medicine clerkship which shifted four weeks from inpatient to ambulatory care settings; and a Community Health Project elective for fourth-year students.

> Exposure to 'real world' medicine...is what the nation's medical schools are attempting to provide as they prepare medical students for the 21st century.
>
> William Mattern, M.D.

"The focus of medical education is definitely shifting to the ambulatory setting for several reasons," said Jacob Lohr, M.D., chief of the UNC Division of Community Pediatrics. "One is third-party-payers are not allowing the hospitalization of patients who were routinely hospitalized in the past. The payment system is driving us to take care of more patients on an outpatient basis. And those who are hospitalized stay for a shorter period of time, giving medical students little time to get to know hospitalized patients, and to follow the course of treatment and care.

"Second are advancements in technology that are enabling the medical profession to do more things on an outpatient basis. For example, in-dwelling lines can be safely inserted in children with cancer, and left in place for long periods of time. Medications that once were administered only during hospitalization are now routinely given to outpatients. This just wasn't possible even 10 years ago. Also, diagnostic technology — CT scans, MRIs — allow evaluations that used to require invasive procedures. These evaluations often can now be done on an outpatient basis.

"Probably the most fundamental reason for expanding the medical student's experience in ambulatory care is that most of what our graduates do as practicing physicians is done on an outpatient basis. Most of our graduates end up in practice in the community. It makes fundamentally good sense to train them to do what they're going to do in practice," Lohr said.

So far, 130 students have successfully completed the ambulatory care selective, which gives them the opportunity to work with full-time primary care physicians. "Students really see the practice of medicine as they never have before," said Michael C. Sharp, M.D., associate professor of pediatrics and course director. "They learn about the role of the generalist physician in the community and find out

Photo by Greg Placida

*As a part of her family medicine clerkship, fourth-year medical student Stacy Bizzell examines a patient at the Orange County Health Department in Hillsborough, while her preceptor Marcia Angle, M.D., looks on.*

what it's like for doctors to get to know their patients."

Students can choose to perform this rotation at medical center outpatient clinics coordinated through the six UNC Area Health Education Centers across the state, at county health departments, or from private practices or rural health clinics. The selective can be taken in family medicine, internal medicine, pediatrics, obstetrics/gynecology, psychiatry or surgery.

Wang, like most of the other students taking the course, chose a private practice, Hubbard, Brown and Bernstein, a pediatrics practice in Raleigh that sees approximately 800 patients per week.

Wang said her experience has been "eye-opening."

"Working there has shown me how different outpatient care is from inpatient care," Wang said. "For example, just the volume of patients seen is much higher, and it has to be just to keep the practice open. And the records are more easily accessible, simply because, oftentimes, the patient has an appointment and has been seen there before. At the hospital, it's often more difficult to locate the chart, and a lot of times, you've never seen the patient before."

> Unique to outpatient clerkships is their combination of community and clinical focus.

With seven physicians at the practice, Wang said she has a chance to observe each physician's style with patients — the time spent with patients, the questions they ask — as well as their interactions with each other. "Learning about the business side of the practice and seeing how partners work together is important and something we don't get in the hospital setting," she said.

Since Wang began her rotation, she has progressed from accompanying the doctors when taking patients' medical histories and doing exams to taking medical histories on her own, said Wallace Brown, M.D., Wang's preceptor, who will evaluate her performance.

Wang and Brown also work together to pinpoint cases from which she can learn the most. "Our setting is really beneficial for medical students interested in pediatrics, because we see a wide spectrum of patients in the community — from simple to complex cases and from preventive care to chronic patients that require continuity of care," Brown said.

Unique to outpatient clerkships is their combination of community and clinical focus, said Donald O. Kollisch, M.D., director of medical student education for the Department of Family Medicine and assistant course director for the ambulatory care selective. "While the family medicine clerkship builds on clinical skills, students

also are encouraged to examine other factors that affect patients, including psychosocial issues and family dynamics."

Howard Hall, a third-year student from Montreat who is performing his family medicine clerkship at Orange Family Medicine Center in Hillsborough, is studying an 85-year-old female patient who frequently visits the practice. "I'm seeing that family support has a direct bearing on things such as compliance and access to health care. In addition to this lady's medical problems, early Alzheimer's and diabetes, we feel she may be suffering from confusion, lonliness and depression. So, I've visited her home a couple of times to get a more complete picture. We've had nice visits, but I also got the chance to make color-coded signs for her that correspond to her medicine, so that she'd take it."

> "We have been reminded that students learn best when working in the 'real world.'"
>
> Donald O. Kollisch, M.D.

Overall, patients have been very receptive to the idea of students playing a role in their health care, said David Tayloe, M.D. '70, of Goldsboro Pediatrics in Wayne County, who has served as a preceptor for two UNC medical students.

"Patients really understand. When we go in, we introduce the student to the patient and let him or her know what the student's role will be. Patients have been very receptive, because everyone knows that we need more pediatricians in North Carolina and that anything we can do to introduce them to the community will be good for all of us down the road," said Tayloe, whose practice is the only group practice that serves Wayne and surrounding counties. His practice sees 1,200 to 1,500 patients weekly.

Sharp said that the outpatient clerkships call on the "charity of community physicians to participate," but that most physicians find they "get something out of the experience."

Arthur Axelbank, M.D., at the Orange Family Medicine Center, said he believes the clerkships are educational for everyone involved, especially for students who say they aren't interested in primary care. "Those students really learn what it is like. They get to see the complications of the cases that we send to them at the hospital and the others that we handle as outpatients."

Students are also discovering the role of community agencies in outpatient care. Students working with Tayloe's practice typically spent three half-days per week visiting social service agencies including the mental health clinic, the Head Start Program and home health agencies. "What they discover is that there is a wealth of community support out there that community doctors should know to activate when needed. We can't do it alone. We require community support," Tayloe said.

Students are also required to complete a project that will somehow help the practice. Tayloe said that his two students' projects, which have examined immunization rates among children and medications that children take, have been useful. Other students have developed manuals, including one to assist physicians in recognizing domestic violence and sexual assault. One family medicine clerkship student began a "Warriors" project in Cherokee to help educate young Indian males about sex.

According to Sharp, many preceptors have reported that their office practices have beneficially changed because of the student projects, and others have said their own awareness of and use of community resources have increased.

Tayloe said, "Sometimes, it does get real crazy here, and we may require that the students just watch. Having a student with you can slow you down, but when they rotate among the six physicians, it really doesn't have a significant effect. On the positive side, the students have really opened our eyes. They ask questions that we haven't thought about since medical school. That keeps us on our toes."

The ambulatory care selective and other outpatient clerkships also have been valuable to the students, according to Kollisch. "We have been reminded that students learn best when working in the 'real world.' Furthermore, we have found that our preceptors, community-based physicians who volunteer to teach, are enthusiastic and skilled teachers. Students come back to us from working with such preceptors 'charged up' with sharpened skills and an 'aha!' sense of being reminded of what being a doctor is all about."

Many students who've taken the selective agree. Their comments on course evaluation forms included: 'Now I remember why I went into medicine,' and 'Why weren't we exposed to these things earlier in medical school?'

According to Mattern, who says future curriculum changes geared toward first- and second-year students are slated, the changes are helping the school reach a concurrent goal — increasing the percentage of UNC graduates who become generalist physicians from less than 25 percent to 50 percent. "Recent residency match numbers show that there appears to be an increase already in the number of UNC students choosing primary care careers."

Sharp said that the outpatient experiences can have a positive impact on a student's decision on whether or not to go into primary care. "Most medical students who apply to medical school do so with the general notion about doctors and their role in the community...the responsible person...the authority figure...the independence and service, the humanitarian aspect," Sharp said. "Those are the pieces that outpatient clerkships remind them of."

# Biomedical Engineering – 25 Years of Behind the Scenes Patient Involvement

**By Barbara J. Proujan**

From the machine that monitors breathing during surgery, to artificial heart valves, to computerized medical record keeping, all of these have been designed by or improved upon by biomedical engineers.

Throughout many of the laboratories in the University of North Carolina School of Medicine and in various areas of UNC Hospitals, the presence of biomedical engineers has left a lasting impression.

Now in its 25th year, the Biomedical Engineering Program at the UNC School of Medicine is involved in many aspects of health care delivery. "It is mostly behind-the-scenes work. We don't usually have direct patient contact," said Carol Lucas, Ph.D., professor and chair, Department of Biomedical Engineering, and professor, Department of Surgery.

The department applies engineering principles to solve medical problems with the result being improved technology that is used directly for better patient care.

"If physicians need technical assistance they may call upon this department," Lucas said. "Occasionally, doctors will ask us to design new machines. For example, at UNC, we developed a non-invasive technique to determine the concentration of oxygen in the blood by taking measurements when a patient breathes out.

"Another area we work on is biomaterials. If a patient needs an implant, biomedical engineers test the device to ensure that it will be safe, determine whether or not it

*Carol N. Lucas, Ph.D., chair of the biomedical engineering department at the UNC School of Medicine, displays models that show pulmonary development in infants.*

will do the job and ascertain how long it will last," she said.

"Biomedical engineering is absolutely essential," said Henry S. Hsiao, Ph.D., associate professor of biomedical engineering and surgery and director of graduate studies. "Living organisms are engineered. We are able to learn about various aspects of the body and describe how they work by using engineering models.

"The major strength of our biomedical engineering program is its involvement in virtually all areas of the School of Medicine," Hsiao said. "With respect to patient care, biomedical engineering plays an important role — we design the new technologies used for treatment and diagnosis." He said biomedical engineering will continue to be on the cutting edge of developments in health care delivery well into the future.

It all began to take shape in the mid-1960s, as new technologies with chemical, electronic and mechanical applications came about worldwide. The UNC School of Medicine saw the need to develop engineering coursework to teach students how to apply these principles in health care settings.

In 1965, Norman Art Coulter Jr., M.D., professor emeritus of biomedical engineering and chair of the curriculum from 1969 to 1982, came to Chapel Hill from Ohio State University to help start the curriculum at UNC. "The School of Medicine developed this program because new technologies abounded that had medical applications," Coulter said. "We needed students with good backgrounds in engineering and medical problems and terminology to work in these areas.

"We were the first medical school in the state to have such a curriculum. Our program is unique in its close association with medical faculty," Coulter said.

When the Curriculum in Biomedical Engineering and Mathematics was approved as a M.S. and Ph.D. program in 1968 with an emphasis on systems physiology, biomedical computing and basic instrumentation, there were five students. Since then the program has grown to include seven curriculum tracks, which are intermeshed, and under the guidance of Dr. Lucas, it gained full academic department status in 1992.

"With Dr. Lucas' far-reaching vision and excellent leadership, this curriculum has become an integral part of the School of Medicine," said Dean Stuart Bondurant, M.D. "The department works closely with other departments across the medical school and health affairs schools on campus to provide the best training for our students and to improve health care delivery systems."

# Rapid Computerized Medical Consultation Now Available

When Win Word-Sims, M.D., a nephrologist at the Kidney Center in Asheville, receives a phone call from the UNC School of Medicine, he knows he has to turn on his new computer.

In less than 15 seconds, he receives a computerized, high-resolution image of a kidney biopsy.

This system, which is very easy to use, decreases the time between biopsy and expert consultation and enables the patient's treatment to begin sooner.

"By using computers and telephone lines, we now can provide rapid, expert consultation to all health care facilities in the state," said Helen Cronenberger, Ph.D., associate professor of clinical laboratory science and co-director of biomedical engineering's communications research facility. "To my knowledge, we are the only place sending these kinds of medical images over the telephone line," she said.

Previously, kidney specialists sent tissue samples to the Glomerular Disease Collaborative Network (GDCN) Nephropathology Laboratory at UNC-Chapel Hill. John Charles Jennette, M.D., director of the laboratory and associate professor of pathology, evaluated the samples under various microscopes and arrived at a clinical diagnosis. "Specimens are sent here because our laboratory has unique facilities that are unavailable in most other places," Cronenberger said.

After the evaluation, Jennette sent photographs of the sample and his evaluation back to the nephrologist who would then call UNC for a complete consultation. Before the computer system was available, the process took an average of one week.

"The computer model system was developed by the Department of Biomedical Engineering's Communications Research Facility (BMECRF) to decrease the one-week time period, and to provide an interactive clinical consultation that incorporated images and voice.

"Now, the nephrologist does the biopsy and sends the tissue sample to us by a (same day) courier service. As Dr. Jennette examines the tissue sample, he takes photographs of it with a camera mounted on top of the microscope. The camera is plugged into the computer," Cronenberger said.

The computer converts the photographic image into digitized information and transmits it over a telephone line, similar to the way a facsimile machine works. Jennette then calls the nephrologist for a consultation.

"It's absolutely wonderful," Word-Sims said. "The computer makes the consultation a lot more immediate. And looking at tissues with an experienced pathologist gives physicians a better feel for what is going on."

"Instead of the physician at each end having to verbally describe the area of the tissue sample being looked at, each person simultaneously looks at the same picture on the computer," Cronenberger said.

"As we talk on the phone, I view the computer image as Dr. Jennette points out the salient features," Word-Sims said.

People in both places can draw or type notations on the images, which the other side immediately views. The resolution of these pictures is extremely good, Cronenberger said. The computerized images, which can be color or black and white and include tissue biopsies, X-rays or blood smears, look as realistic as photographs, only they are viewed on a computer screen, she added.

The remote physician's computer receives the image in approximately 12 seconds. "This is a great feat to accomplish. Two years ago, this would have been impossible to do. We are pushing technology to the limit," Cronenberger said.

"But, we are utilizing technology [telephone lines] that reaches everyone in the state because we're concerned with getting information to health care workers no matter where they are located," she added.

"The computer communications system promises a method of more effective consultation between medical specialists and the resultant improvement in patient care," she said.

Additionally, physicians can use the computer for word processing and other standard functions when they are not using it for medical consultation.

Investigators work with many other departments and divisions including aging, cardiothoracic surgery, cell biology and anatomy, computer science, general surgery, orthopaedics, neurology, pathology, pediatrics, pharmacology, physical therapy, physiology, radiation oncology and radiology. A total of 60 faculty — 15 with teaching responsibilities in biomedical engineering, 13 adjuncts with secondary appointments in biomedical engineering and 32 affiliates or faculty friends that regularly support student research projects — are responsible for 59 students.

At UNC, students may choose courses from the following tracks:

o Microelectronics — design of biomedical instrumentation.

o Instrumentation — research and development in the areas of transducer, circuit and device design.

o Biosystems analysis — animal or mathematical models of biological systems.

o Biomaterials and biomechanics — biocompatibility of materials, design of implants, testing of novel materials.

o Medical imaging — basic principles, techniques and instrumentation of various medical imaging modalities and medical image reconstruction, processing, evaluation, display and analysis.

o Digital systems — microcomputer systems for biomedical instrumentation and signal processing applications.

o Medical informatics — concepts and principles underlying the collection, processing and display of medical information and the study of medical databases and how they may be applied to diagnosis and treatment.

Students can also supplement these programs with courses from North Carolina State University and Duke University (at UNC tuition prices), Lucas said.

In 1992, medical informatics became the newest track in the Department of Biomedical Engineering and brought in 30 faculty associates. Under the leadership of Charles P. Friedman, Ph.D., director, Office of Educational Development and professor of family medicine and biomedical engineering, this track was launched with a joint training grant with Duke from the National Library of Medicine. About one-fourth of the students take coursework in this field.

"So much of medicine nowadays is automated, and computers touch just about every aspect of medicine from the machines used for patient care to the word processors in a doctor's office," Hsiao said. "Computer technology is probably the single most widespread aspect of patient care.

"Our graduate students have been very much in demand for work in clinical and basic science research laboratories because of their knowledge, especially in the fields of computers and instrumentation and now medical imaging," he said.

"UNC is recognized as one of the premier training areas in the field of nuclear medical imaging," Lucas said. Benjamin M. Tsui, Ph.D., professor of biomedical engineering and radiology and director of research, "is recognized as a leader in nuclear medicine imaging for his research, especially in single photon emission computed tomography (SPECT), which will have a direct patient benefit," Lucas said.

> "UNC is recognized as one of the premier training areas in the field of nuclear medical imaging."
>
> Carol N. Lucas, Ph.D.

To produce 3-D images of the inside of a patient and determine what is wrong, especially in cardiac disease, Tsui combines techniques used in computed tomography and nuclear medicine.

"Computed tomography (CT) provides good information on anatomy, but poor information about functional or physiological changes; nuclear medicine yields functional information. SPECT, which has a poorer resolution than CT, yields unique functional information," Tsui said.

"My colleagues and I are working on improving the resolution of SPECT imaging by developing new hardware, software and equipment. We will obtain patient information using acquisition techniques similar to that of CT and then reconstruct it with computers for a 3-D view. The ultimate goal is to allow a physician to make a better diagnosis. We are one of the largest groups in the country working in this area of research," he said.

The medical imaging track is greatly strengthened by its ties with the departments of Computer Science, Radiology and Radiation Oncology. For example, Lucas said, "One of our doctoral students working in Radiation Oncology developed a computer program that defines how radiation should be given to a patient, what areas of the body need to be covered with a lead shield and how the patient is moved under the machine."

Other investigators in this group are working to make imaging scans better by improving visualization techniques and image processing and sequencing, as well as determining how to obtain the image in the first place. According to Lucas, about half of the students in the department are involved in some aspect of medical imaging.

Another area of research with direct patient benefit is artificial bone material development. Jacob S. Hanker, Ph.D., professor of dental research and biomedical engineering, biomaterials track, developed a compound used to create artificial bones in people with advanced periodontal disease who otherwise would have needed their teeth extracted.

The formulation of two commonly used materials — hydroxylapatite (tiny ceramic particles) and plaster of Paris — has revolutionary bone repair properties, Lucas said. Now the composite mixture often is used for many types of bone reconstruction because it becomes integrated into a patient's body.

Lucas along with Benson R. Wilcox, M.D., professor and chief, Division of Cardiothoracic Surgery, and G. William Henry, M.D., associate professor and chief, Division of Pediatric Cardiology, are trying to develop better diagnostic techniques for detecting abnormal pulmonary blood flow in infants. As infants grow, their hearts and blood vessels undergo structural changes such that a normal flow pattern at one age may be very abnormal at another. She has developed several models, which accurately reflect these anatomical changes that may affect blood flow as the child ages.

Additionally, she characterizes blood flow by using computerized mathematical models. "Without computers this analysis would have been extremely difficult, or perhaps impossible to do," she said.

The future for the UNC Department of Biomedical Engineering looks bright.

"With 25 years of experience behind us and our new departmental status in hand, we feel well poised for a great leap forward."

# Profile of This Community Doctor Reveals the Civic Side of Medicine

M.D. appears after the name of William R. Purcell, M.D. '56, on the roster of physicians at the Purcell Clinic in Laurinburg. Local folks insist the letters M.C. should be there, too: Model Citizen.

Some remember when Bill Purcell (Gus and Anna Meta Purcell's youngest boy) went off to the University of North Carolina at Chapel Hill to become a doctor. "Even after all that education, it seemed fitting that he'd come back home to practice medicine," one longtime resident remarked. "After all, the Purcell family has been here since 1776, maybe longer."

Purcell has maintained a pediatrics practice in Laurinburg for more than 26 years. He says some of his earliest patients are now bringing in their children, and "soon it will be their grandchilden."

"Without a doubt, Dr. Purcell is one of the most respected people in Scotland County," said Pete Vandenburg, Laurinburg city manager. "Dr. Purcell is dedicated to his profession...and as Mayor Purcell, he's just as dedicated to the progress of the community."

"I've known Dr. Purcell for about 30 years," said Ben Tatum, M.D. HS '64, an obstetrician and gynecologist in Laurinburg, "and I've met no finer person in my life. He's a Marcus Welby-type physician, the shining example for any doctor. He has a tremendous passion for people."

John Chase, a fourth-year UNC medical student, who recently completed his four-week ambulatory care selective at the Purcell Clinic, said: "You've got to meet this man to believe it. There are 48 hours in his day."

"He does take responsibility seriously — his practice, his family, church and community," said Jane Purcell, his partner in marriage for 37 years. "It's a fact he doesn't sit for long."

"I've known Bill Purcell since 1952, when we started and went through four years of medical school together," said William W. McLendon, M.D. '56, professor of pathology in the UNC School of Medicine and chair of Hospital Laboratories. "I was fascinated to learn that he is the mayor of Laurinburg, but not surprised. He's always been very interested in people, and he's probably a very good listener."

*William Purcell, M.D.(left), meets with Laurinburg City Manager Pete Vandenburg.*

"That's his style," Vandenburg said. "At city council meetings, everyone participates, everyone is heard."

"Above all, Dr. Purcell is sensitive to the needs of all people, and honest," said Chief of Police Robert Malloy. "He comes straight at you — you don't have to wonder where he stands on issues."

One of those issues is racial harmony. In 1991, Purcell was presented the Martin Luther King Award by the town's Black Ministerial Association in recognition of his efforts in promoting awareness of and acceptance for cultural diversity. Ten years ago, in 1983, he received the Algernon Sydney Southerland Award presented by St. Andrews Presbyterian College in Laurinburg. It reads: *He reached out both his hands in constant helpfulness to his fellow men.*

"I'd put that in active tense. He's always reaching out," Vandenburg said.

Truly a man about town, Purcell has been president of the Laurinburg-Scotland County Area Chamber of Commerce and the Rotary Club, and served as a member of the Scotland Memorial Hospital Board of Trustees for 12 years. He has been chair of the Scotland County Board of Health and an elder in his church.

*Purcell examines one of his patients, Martina Smith, 5.*

Purcell served on the Laurinburg City Council from 1981 to 1987, the year he was elected mayor. He is now in his third term.

Friends say it's not what all he's done, it's how he's accomplished it — with grace and charm, generosity and dedication, concern and interest.

Following his internship at the Medical University of South Carolina Teaching Hospitals in Charleston, two years in the Army and two more years of residency training in pediatrics back at MUSC, Purcell opened a practice in Laurinburg in 1961, alongside another young physician, Campbell W. McMillan, M.D.

"Campbell and I were the first people in pediatrics here," Purcell recalled. "We opened our practice in a little house that we purchased. And we struggled. Office visits were $4, and we didn't get paid for half of those. There was no Medicaid."

"Bill and I were not exactly welcomed with open arms, as pediatrics was a new specialty at the time," McMillan said. "Laurinburg had only family doctors back then, so it took time for people to get the hang of this since it was new and different.

"The establishment of pediatrics as a specialty in Laurinburg is completely the outcome of Bill Purcell's efforts. I got my first real taste of community pediatrics in Laurinburg, and the key person from whom I learned the most, besides the patients, was Bill Purcell," McMillan added.

After a year and a half, McMillan returned to Chapel Hill to join the medical school faculty because of a "deep-down hankering to get back to academic medicine." (He stayed on at UNC until his retirement in 1992 as professor of pediatrics in the Division of Hematology-Oncology.)

Because times were tough, Purcell said he made a "difficult decision" to move his practice to Charleston in 1965, to serve a larger population base there. "But it just didn't suit me. It wasn't as appealing to me as the front lines in Laurinburg where you see a wide range of people with challenging problems. That's when I realized, once and for all, that Laurinburg is where I belonged." Purcell re-opened his practice in Laurinburg in 1967.

Today, the four pediatricians in the Purcell Clinic serve a population of approximately 100,000 people. It is the only pediatric clinic in Scotland County and attracts patients from Robeson, Richmond and Hoke counties in North Carolina and from Marlboro County in South Carolina.

"The most striking changes since those early years have been in newborn care," Purcell said. "When Campbell and I were beginning our practice here, there was no intensive care nursery at Chapel Hill.

"During those days in Laurinburg, we had about 1,000 deliveries a year in our hospital; it was a pretty busy place for a small community. But if the babies got sick, nobody knew what to do. It wasn't a matter of sending them off somewhere, because nobody else knew what to do, either.

"I remember jaundice of newborns from Rh sensitization. But, now with RhoGAM given to the mother after she has the first baby, we just don't see it much anymore.

"The breakthroughs we've experienced in newborn care are almost unbelievable. What we do today is stabilize the critically ill newborn for transport by the aero-medical teams to the Pediatric Intensive Care Unit at UNC Hospitals or Duke.

"Although we're 100 miles from UNC and Duke, we have good working relationships with the medical centers. The help we've gotten is fantastic. I'd guess every day we're talking to somebody up there. We don't have all the neurosurgeons and specialists here at Scotland Memorial to back us up, so we're dependent on the academic medical centers."

The Purcell Clinic recorded about 33,000 office visits last year, he said. "Most kids present with medical problems that we can deal with — the flu, chicken pox, diarrhea, fevers, ear infections, hyperactivity — but we are seeing an increasing number of kids with behavioral problems and drug problems.

"We checked every baby born over a three-month period for the effects of drugs, and 13 percent showed the presence of drugs. To me, that's a staggering figure. It's scary that this many mothers are using drugs during pregnancy. We are very concerned that many of these children may have learning problems later on — problems that could have been avoided through drug-free pregnancies.

The Purcell Clinic follows the customary pediatric practice of treating adolescents as well as infants and children, and "we are seeing a rising incidence of teen-age pregnancies," Purcell said. "Sadly, there are 13-year-old and younger girls having babies in North Carolina.

"On the positive side, people are generally healthier now than ever before. We don't see the malnourished, starving children that were once associated with rural counties."

For 200 years, Scotland County has had agricultural economy, but the balance is shifting, Purcell said. "In the 1960s and '70s, the Chamber of Commerce and other interested groups got together and went out to recruit industries.

"We've been successful in that effort — bringing in 20 blue-chip industries in as many years: one a year, for 20 years. Abbott Laboratories, Rockwell, Libbey-Owens-Ford Glass, a shipping center for the Champion Company, makers of uniforms

and jerseys for the NFL and the 1992 Olympic Basketball 'Dream Team.' The biggest employer is J.P. Stevens. The Eaton plant here makes 75 percent of the golf grips made in the world. Campbell Soup Company is just across the line in Robeson County."

That's the mayor talking...and in that capacity, he checks in at City Hall each morning, after his rounds at the community hospital, on his way to the clinic. He presides at all meetings of the city council and performs the ceremonial duties that are associated with the office. (He has learned how to say 'no,' having turned down a request to participate in a local pie-eating contest.)

But when the new Wal-Mart opened, the mayor was front and center, speech in hand.

One of the things Purcell said he enjoys most is the opportunity to meet state governmental officials and tell them about the virtues of Laurinburg living. "The only thing that's better is having them come to town, so I can show them around, personally. Of course, I always put in a plug for good health care in North Carolina. I talk about that every chance I get.

"Public service has helped me realize that a lot of people out there write letters to their heads of government. I get a lot of letters, and I try to answer them all."

One of those letters addressed to the Honorable Mayor William Purcell is framed and hangs on the wall of his office at City Hall. It shows a child's drawing of a reindeer and concerns the Main Street's Christmas decorations. It reads:

"Last year my favorite class wrote a letter to you asking that red noses be put on the reindeer. We are really happy to see red noses on the reindeer, and we thank you and the city workers for making the decorations so pretty. I really like it. Merry Christmas and Happy Holidays. Yours truly, Leslie Turner, Miss MacKenzie's former Third Grade Class, Laurel Hill School."

"I think life would not be so fulfilling if all I did was medicine. The community's been very good to me, and I believe that most doctors feel the same way and try to do what they can in the area of community service.

"The point I would like to make with medical students and young physicians is that primary care can be a very rewarding and good experience. And there are not enough doctors out here to do it.

"We try to recruit doctors to join our practice, but it's hard. Some people say they just don't want to get involved in Medicaid. But there was a time we took care of all these people around here for free, so I have a different perspective. There are not enough people going into pediatrics, family practice or ob/gyn in the smaller communities.

"Traditionally, medical students have had very limited contact with primary care physicians. Now, medical schools are beginning to farm out students to small communities. Our office is glad to take part, and the students will spend a month with us. It's been a good thing all the way around, and it has given the students an opportunity to experience small-town living and see that it's not total isolation from society.

"We are connected to all the power and knowledge at the UNC medical center through the Carolina Consultation Center. We can call up there any time of day or night and talk with professionals in pediatrics and specialties — many of these people are more than associates, they are our friends. Just being able to call them up is a big factor in enjoying practice in a small community. You don't feel isolated at all. We can tap into the resources of the medical school faculty whenever we need to.

"The new technology is bringing the medical center into the community; it's fascinating."

The practice of medicine and the importance of the community constantly weave through Purcell's conversation — and life. Balancing professional, family and community wants and needs can present a challenge, but he said, "it makes life a little fuller.

"I think in a big city it would be more difficult for a doctor to become mayor and become involved," Purcell said. "Laurinburg's just the right size."

"The first year he was mayor was his first time to ride in the town's Christmas parade," Vandenburg recalls, "and it was a real toss-up with the kids as to who was more popular, Santa Claus or Dr. Bill."

Townspeople know full well it wasn't the man in the red suit who made Leslie Turner and Miss MacKenzie's former Third Grade Class happy by putting red noses on the reindeer.

*Photos by Don McKenzie*

*Purcell relaxes in his backyard with his granddaughter, Liza, 2, daughter-in-law Terri, and sons Bill (left) and Gus (in foreground).*

# Student Research Day - Spanning A Quarter of a Century of Investigations

*We must dare to think "unthinkable" thoughts. We must learn to explore all the options and possibilities that confront us in a complex and rapidly changing world. We must learn to welcome and not to fear the voices of dissent. We must dare to think about "unthinkable things" because when things become unthinkable, thinking stops and action becomes mindless.* James William Fulbright, *The Arrogance of Power.*

For the last 25 years, many students at the University of North Carolina School of Medicine have dared to think the unthinkable by asking scientific research questions and searching for the answers, and then have had opportunities to present their findings in a simulated scientific meeting format.

Although the opportunity to participate in medical research had been offered to students in Chapel Hill for more than 25 years, it was in 1968 that Student Research Day was established, providing a forum to students to present their findings to their peers and the faculty.

Held in late January or early February each year, Student Research Day, which is sponsored by the Whitehead Society and the John B. Graham Student Research Society, provides students with an opportunity to learn about the scientific method and explore the possibilities that medical research offers.

According to Dean Stuart Bondurant, M.D., "Student Research Day is a clear signal of support for the creative scholarship which is integral to high academic standards. Participating in student research adds in several very important ways to the quality of the educational experience, particularly in seeing how new knowledge is generated. Our faculty is to be commended for its support of student research.

"I am especially impressed by the quality of research presented by the students. Many are well on their way to important scientific investigational careers," he said.

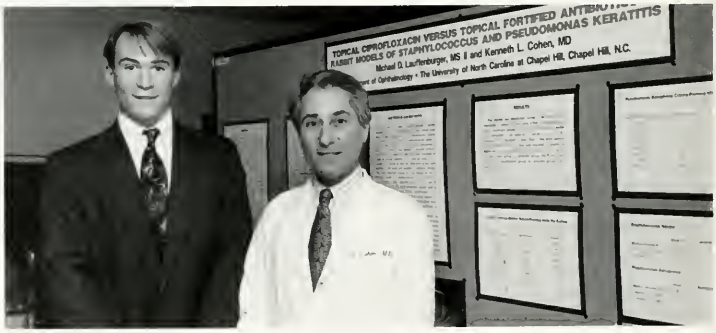
One such student was Cort Pedersen, M.D. '79, who is now a faculty member at UNC. In 1980, Pedersen won first place for his presentation, "Induction of Maternal Behavior After Intracerebroventricular Administration of Oxytocin."

"I determined that oxytocin acts in the brain, not the blood to stimulate maternal behavior," said Pedersen, associate professor of psychiatry.

From this research, Pedersen has gone on to do further studies in this area. "Since then I have determined that oxytocin stimulates female sexual behavior. In the last decade, oxytocin has emerged as the most effective neuropeptide as far as inducing sexual behavior, reproductive behavior and parenting behavior. And that all started here," he said.

"The appeal of research to me is that it allows you to be independent. To be able to solve problems that no one ever understood before is very stimulating," he said.

"For me, the chance to participate in student research was an exciting opportunity to explore almost on a single-handed basis an aspect of blood clotting," said Robert L. Reddick, M.D. '73, Kenneth Brinkhous Distinguished Professor of Pathology. Additionally, Student Research Day helped Reddick choose a career path.


TOPICAL CIPROFLOXACIN VERSUS TOPICAL FORTIFIED ANTIBIO
RABBIT MODELS OF STAPHYLOCOCCUS AND PSEUDOMONAS KERATITIS
Michael D. Lauffenburger, MS II and Kenneth L. Cohen, MD
Dept of Ophthalmology • The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

*Second-year medical student Michael D. Lauffenburger and his preceptor Kenneth L. Cohen, M.D., professor of ophthalmology with their presentation.*

In 1972, Reddick won first place for his presentation, "The Platelet Plasma Membrane: Observations by Freeze-etch Techniques." It reflects his current medical research. "A major focus of my research now is blood clotting. I'm also interested in atherosclerosis — hardening of the arteries — because platelets are involved in this."

His student research involved a new way to look at the surface of platelets and how this changes when platelets become involved in the coagulation process. "I devised a way to look at platelet surfaces and was able to investigate whether or not there were any differences in platelets with normal function versus those with abnormal function, and then I determined if these differences were related to function."

"Participating in student research at UNC is not a requirement," said Gregory Strayhorn, M.D., Ph.D., associate dean, academic and student programs, and associate professor of family medicine. "Students who are interested have the opportunity to learn how to use the scientific method — raise a question and investigate it in an organized and disciplined fashion. It also encourages a mentor relationship with the faculty," he said.

Student Research Day is totally run by the medical school students. "With much faculty support, Student Research Day has become a sizable event," said Eric S. Bachman, a third-year medical student and vice president of the Whitehead Society. Every year there have been more applications to participate and more enthusiasm. This year there were 27 poster presentations and 15 slide presentations.

"It was always easy to fill all the available research slots," said Arthur Finn, M.D., professor of medicine and physiology, who helped direct student research for 12 years. "And often I had more applicants than positions. When the faculty are interested, the students' interest really perks up."

Finn expanded the summer-long program to one that gave students the opportunity to do research at any time throughout the year. Initial funds from the Dean's office and an ongoing grant from the National Institutes of Health made this possible. "One of the ideas behind student research is to get students into an academic research environment, and then try to capture them and get them excited about academia and research," he said. "I try to encourage everyone to participate."

Alumnus James B. Sloan, M.D.'70, who is in private practice in Wilmington and is past president of the UNC Medical Alumni Association, was encouraged to participate

# Nobel Prize Winner Presents Student Research Day Lecture

*Editor's Note: The following is excerpted from the Landes lecture delivered at the 25th Annual Student Research Day by Nobel Prize winner J. Michael Bishop, M.D., professor of microbiology, immunology, biochemistry and biophysics, and director of the George Williams Hooper Foundation at the University of California at San Francisco. Bishop along with Harold Varmus, M.D., also at the same institute, won the Nobel Prize in 1989 in Medicine or Physiology for their work with oncogenes. Bishop's lecture was entitled "Science and Society or How to Win the Nobel Prize."*

"The purpose of this occasion is very dear to my heart. We're here to encourage research and scholarship by students in medicine. I was once a student in medicine who found meaning and fabrication, and even a career in research. So I have chosen this evening to speak about my life as a scientist, where it has led me, what it has meant to me and some of the problems and challenges I now perceive.

"I like music as much as science — perhaps more. But when I was still young I realized that I had little talent for music and some talent for science. So I took what I had and ran with it. I entered college without a career vocation. I began medical school with little interest in practicing medicine. Slowly but surely, under the influence of fellow students, much more so than faculty, but with a few memorable teachers, I found my career in research.

"The paths which Harold and I followed were not premeditated journeys to a calculated goal. We followed our noses and they led us to an amazing place. Follow your nose, it may lead to an amazing place. Those of us who teach should place less emphasis on premeditation, more on inspiration. We should educate, but we should also allow our students to follow their own noses.

"Winning prizes is not the point of science. We do our work because we are enthralled and challenged by the puzzles of nature. Most scientists are ordinary people who go about doing generally ordinary things, which when assembled reveal the extraordinary in nature.

"We live, literally, in an age of science, when many of nature's great puzzles have been solved. We have found the molecular secrets to our inheritance, we will eventually be able to manipulate that secret to our purposes. We have traced the origins of life. We have broken matter into smaller and smaller pieces. We have cured and prevented diseases that once killed millions every year. But the prospects they offer us are threatened.

"The United States now spends more than $600 billion a year on health care costs and less than 2 percent of that on research and development in the biological sciences. By contrast, the defense agencies spend 15 percent on research and development. Our populace spends annually $1.8 billion on Nintendo, a computer game, which is more than the $1.6 billion we spend on cancer research. Surely, there is something there to spare for the cancer research, for the human genome project, for the super collider project.

"In the early 1980s, the National Institutes of Health funded 6,000 to 8,000 research grants. This year they were able to fund only 4,800. Medicine and science have reached the brink of being, once again, professions accessible only to the affluent and the entitled. The decline in grant funds is demoralizing, but more importantly, it discourages the future generations.

"We must change the way we prepare physicians for research. Medical scientists must concentrate intensively on science in an uninterrupted fashion during the formative years. Medical schools must have forward-looking clinical departments that encourage physicians to delve equally into the basic sciences. We also must have first-rate departments of basic science that are enthusiastic about training M.D.s.

"Science is the master of man. If there is to be wisdom in the application of modern science, the physician must understand that science or submit to the wisdom of others.

"We simply must do better, if not the generations to come will damn us for it. A person's first duty is to be ambitious and the noblest ambition is that of leaving behind something of value."

in research by a UNC ophthalmologist. "Dr. Samuel D. McPherson encouraged me to do research, and I picked the project, 'The Treatment of Pseudomonas Corneal Ulcer with Betadine.' And a lot has come from that." His presentation won first place in 1969.

"We proved that Betadine was effective and safe in killing bacteria in the eye and determined the proper concentration needed to do so. Before this study there was not a good ophthalmic preparation; others irritated the eye. Betadine kills bacteria without irritation. The majority of ophthalmologists now use Betadine in the pre-operative stage to clean patients' eyes, and bacterial infections after eye surgery are rare," he said.

To enable students to share their findings with as many other students and faculty as possible, no medical school classes are scheduled on the day of the presentations. "Student Research Day is offered, in a sense, as a special course," Bondurant said.

In an effort to provide more recognition for students, the student research society was established in 1984 at the suggestion of Harold C. Pillsbury III, M.D., professor and chief, Division of Otolaryngology, Eugene P. Orringer, M.D., professor of medicine and director of the Verne S. Caviness General Clinical Research Center, and others. All participants in Student Research Day become members of the John B. Graham Student Research Society. "The society has promoted a cohesive interest in research," said Pillsbury, who also is faculty advisor for the society.

"It is a living society," he said. "Every 10 years the name will be changed to reflect an individual that the students have some allegiance to from the standpoint of having an active role in their careers."

John B. Graham, M.D., Distinguished Professor Emeritus of Pathology, who has made several advances in the study of the relationship between genetics and disease, has worked with more than 50 students over the years. "I encourage students to do research," he said. "It is fun and it is a stimulating challenge when you have a problem that you need to find a solution to. The process is similar to making a diagnosis on a sick patient, but with research you have more control over the circumstances."

"In general, we have a faculty that is exquisitely attuned to making opportunities for students to participate in research," Bondurant said. "It has become almost a natural action for our senior faculty to invite students into their labs for research, and that's become one of the special strengths that differentiates our school of medicine from many others."

For the last seven years, all of the abstracts presented at Student Research Day have been published in the student journal *FAX*. The journal is totally student-run.

Student Research Day concludes with a dinner and the announcement of the student winners. These individuals receive a monetary award from the Michiko Kuno Award that was established in 1975 in memory of the wife of Motoy Kuno, Ph.D., professor of physiology. These individuals also automatically have their abstract accepted at the annual Student Research Forum held in Galveston, TX. "Several of our students have been winners at the national competition," Strayhorn said.

Since 1986, the Ralph R. Landes lecture has been presented at the dinner. The lectureship was established in honor of Ralph R. Landes, M.D., of Danville, VA, clinical professor of surgery (urology), who died in 1989.

This year, the winners were judged more scientifically than in the past using a standardized form to fill out with a scoring system and specific judging criteria for presentation and content.

Reddick was a judge in 1992. "It was wonderful listening to the presentations. Student research is a important part of the academic atmosphere."

"After participating, I had a better understanding of the investigative process and what scientific data means when it is presented," said Sloan. It's a lesson that's every bit as relevant to medical education in 1993 as it was in 1968.

Photos by Dan Crawford

*Dean Stuart Bondurant (left) and Mrs Elizabeth Landes with this year's Student Research Day winners, Peter R. Bream Jr., Brant K. Oelschlager and Nicklas B.E. Oldenburg. Far right is Nobel Prize winner J. Michael Bishop, this year's Ralph R. Landes lecturer, who is director of the George Williams Hooper Foundation at the University of California at San Francisco.*

*Those responsible for Student Research Day include (seated) Gregory Strayhorn, M.D., Ph.D., associate dean for Academic and Student Programs, and John B. Graham, professor emeritus of pathology; (standing from left) Arthur Finn, M.D., professor of medicine and physiology; John T. Sessions, M.D., professor of medicine; and Harold C. Pillsbury III, M.D., Thomas J. Dark Distinguished Professor of Surgery.*

# VISTAnet, A Vision of the Future Now

**By Barbara J. Proujan**

There may come a day in the future when physicians will use high-speed computers that talk to each other to provide better patient care and treatment, especially in the field of radiation oncology.

At the University of North Carolina at Chapel Hill, that future is dawning with VISTAnet — one of five experimental testbed sites for high-speed computer networks nationwide.

With standard computer networks, complex problems, such as determining one radiation dose plan for a cancer patient can be time intensive. "There is so much data involved, that doing 3-D radiation dose distribution planning is a very slow process; it is so complicated that it takes a computer about 30 minutes to do the calculations for just one plan," said Julian Rosenman, M.D., associate professor of radiation oncology.

Radiation treatment planning involves a radiation oncologist developing an individualized plan for each cancer patient.

"The plan involves how to deliver radiation in as safe a manner as possible, yet get as much radiation dose to the cancer as possible," he said. "The obvious way to do this is to cross fire as many radiation beams as possible that are centered on the tumor. For example, we could fire six beams at the tumor and plan to have the tissue between the tumor and the radiation only be hit by one beam and receive one-sixth as much radiation. If we do this well enough we will obliterate the cancer and spare the normal tissue as much as possible."

For each such treatment plan, the physician determines the radiation dose by developing a model. "Traditionally these models had been 2-D, a single slice through the patient or a few slices, but patients aren't just a slice; they are 3-D. Only recently have we been able to do 3-D dose planning.

"3-D treatment planning involves determining where the beams will be and the radiation dose distribution — that is, the dose that the different parts of the body receive. But because of the complexity of the mathematical calculations and the amount of time it takes a computer to do them, we usually at the most, do three or four different radiation dose treatment plans for each patient," Rosenman said.

"But what if there were a computer system that would allow us to calculate the dose distribution so fast and then display it so fast that we could examine hundreds or even thousands of possibilities in minutes instead of hours?" he asks.

Hence the creation and initial use of VISTAnet.

At UNC the focus behind VISTAnet is medical, but VISTAnet was made for many purposes, including high speed graphics development, computer networking, medical visualization and communications research.

The difference between VISTAnet and other computer networks is that the computers involved are highly specialized and talk to each other at incredibly faster speeds than normal.

VISTAnet pushes computer network speeds up from the typical one to three megabits per second (one to three million bits per second, with a bit being the simplest piece of information transmitted) to near one gigabit per second, almost 1,000 times faster.

This high-tech demonstration is a partnership between the UNC School of Medicine's Department of Radiation Oncology, the UNC Department of Computer Science, MCNC (a not-for-profit microelectronics, communications and supercomputing research center in Research Triangle Park), BellSouth, GTE and North Carolina State University. The idea for the five national test sites for gigabit computer networks was originated by the Corporation for National Research Initiatives. VISTAnet receives funding from the Defense Advanced Research Projects Agency and the National Science Foundation, as well as BellSouth and GTE.

"VISTAnet, which is a long-range vision of computer use of the future, was created to answer the questions of whether high-speed computer networks are feasible and whether it is useful for any single application to have communications that are that rapid," said Henry Fuchs, Ph.D., Federico Gil, professor, in the UNC Department of Computer Science.

Although VISTAnet was developed to allow radiation oncologists to do treatment planning in near real-time, the system is not used for direct patient benefit, just in case there is an unnoticed glitch at any point in the data transmission process. "However, information learned from patients can be used retrospectively, after being transferred to a standard clinic computer, to help future patients with similar tumors," Rosenman said.

Current research plans are for the network to operate at 600 megabits of information per second, enabling UNC researchers to link a powerful graphics imaging computer at UNC with MCNC's Cray Y-MP supercomputer 18 miles away in Research Triangle Park.

To create the network, the telephone companies supplied the fiber optic cable that the transmissions run on and also spent considerable funds on new technology that would allow data to be handled at these high speeds; this included much research to develop high-speed digital switches to help move the information along.

NCSU and MCNC focused on 'traffic analysis' of the network. "The traffic analysis work that MCNC is doing with NCSU relates to measuring and statistically describing the detailed use of the network," said Dan Stevenson, director of communications research, MCNC.

VISTAnet is a testbed precursor for the development of a large-scale research and education network, said Stevenson, who also is the overall project coordinator. "This is the technology of tomorrow."

From a medical perspective, to operate VISTAnet, a physician in the N.C. Clinical Cancer Center uses standard equipment to transfer a patient's computed tomography (CT) scans showing the location of a tumor and body structures to Pixel-Planes 5.

Pixel-Planes 5 is a leading edge high-speed graphics imaging computer created by Fuchs and John W. Poulton, Ph.D., research associate professor of computer science, to be used for such visually demanding applications as virtual reality and interactive medical displays. The interface between Pixel-Planes 5 and the network was designed and built by Rag Singh, Ph.D., research assistant professor in computer science, under the direction of Vernon Chi, lecturer in Computer Science and director of UNC's Microelectronic Systems Laboratory.

"Pixel-Planes 5 is one of the fastest computer graphics engines in the world — if not the fastest," Chi said.

One of the early steps in getting VISTAnet to work was determining how to get the supercomputer to talk and understand the "same language" used by Pixel-Planes 5. "Within three years, we got this system up and running and are very close to operating it at full speed," Chi said.

Using the CT data, Pixel-Planes 5 produces a high-quality 3-D model, or image of how the patient looks, and transmits the information, which is in numerical form, at extremely high speed over the fiber optic cable to the Cray supercomputer.

The Cray computer then performs dose calculations at a rate of several times per second. This new information is returned via the fiber optic cable to the Pixel-Planes 5 computer and overlaid on top of the 3-D patient model to show the physician what will happen with that specific treatment plan.

Photo by Jay Mangum

*VISTAnet technology will someday allow 3-D radiation treatment planning for cancer patients, according to Julian Rosenman, M.D., associate professor of radiation oncology.*

"Unlike some computer programs where if you don't like the results being displayed you would have to re-start the program with different parameters, we're able to modify the program as we go along," Rosenman said.

Another researcher using the system is Scott Sailer, M.D., assistant professor of radiation oncology. With a grant from the American Cancer Society, he is comparing different ways of treating nasopharynx and lung cancers. He performs a literature search of medical journals and then uses VISTAnet to compare the various treatment plans to one another to determine which treatment is better.

"My work is a retrospective review," he said. "For example, if a physician at one institute uses one radiation plan and another physician elsewhere uses a different plan, I reproduce the plans on VISTAnet and compare them to see which had the better results.

"The key to VISTAnet, as far as my research is concerned, is that everything I need to use the system is here at UNC. All of the data are generated here and are transferred and loaded onto various machines that are being remotely controlled," Sailer said.

"VISTAnet provides researchers with a glimpse of the future that will be shaped by high-speed computers," Stevenson said. Networks like VISTAnet may eventually enable researchers and computers across America to communicate with each other and solve complex problems and efficiently move information from place to place, Stevenson said. Additionally, these high-speed, high-volume networks may also hold promise for use in business.

"By using VISTAnet, we have resolved questions concerning the design and use of very high speed networks," Rosenman said.

For the future, Stevenson hopes that "we will be able to reduce the process so that it could be performed on less expensive computers, like a high-end workstation. It is hard solving a problem the first time out. But with practice comes experience and insight. Also, technology always is advancing, to allow us to think about doing this."

Another future thought is to "develop better image processing with a higher quality than VISTAnet currently provides, which may be useful for other medical areas such as surgery," Rosenman said.

Additionally, instead of a physician determining the boundaries of various structures on the model, Fuchs thinks that in the future the computer will be able to find them.

"We may be able to not just split apart an area of the body, but be able to see a specific site. We would be able to instruct the computer to find an area or an organ, such as the thymus, and show it in 3-D," Rosenman said.

"We now have VISTAnet 1 in which the information that we have learned from patients can be used retrospectively. I'd like to see the technology from VISTAnet migrate to be used on one machine and be used for clinical practice. I think that within three to five years there will be direct benefit for cancer patients."

# Development Notes

## Leaders Encourage More Participation as Loyalty Fund Nears Goal

Gifts to the UNC School of Medicine's Loyalty Fund topped $290,000 as of March 31, representing about 83 percent of the fund's $350,000 goal for fiscal year 1992-93, which ends June 30.

"The dollars are on target and our objective right now is to increase participation to our 33 percent goal," said Jane McNeer, director of development with the Medical Foundation of North Carolina. "So far, 712 alumni have given — which represents 16 percent of the 4,300 total alumni body. The average gift is $407."

Last year, gift support to the Loyalty Fund reached an all-time high of just over $332,000 with 26 percent of alumni participating. The Loyalty Fund is the annual fund for medical school alumni and supports students, faculty and alumni programs, and the Health Sciences Library.

"As much progress as we've made having come from 9 to 26 percent in just three years, we still are behind area medical schools, which have alumni participation rates ranging from 50 to 68 percent," said John W. Foust, M.D. '55 of Charlotte, national campaign chair for the Loyalty Fund. "I encourage all alumni to demonstrate their pride by giving now to the Loyalty Fund campaign. This is a great time to do it, because contributions made this year count toward the School of Medicine's Bicentennial Campaign goal of $47 million."

Results of challenge campaigns between counties and classes were shared at the annual banquet during Medical Alumni Weekend in April. Thomas J. Koontz, M.D. '66, led the Forsyth County campaign which competed against Guilford County, chaired by Otis N. Fisher Jr., M.D. '59, and Robert E. Sevier, M.D. '66. With an outstanding 60 percent of its alumni participating in the campaign, Guilford County raised in gifts and pledges $45,444, while Forsyth County raised $36,420 with 36 percent if its alumni giving.

In another county campaign challenge, Wake County, chaired by David A. Rendleman III, M.D. '70, topped Mecklenburg County led by co-chairs Charles H. Edwards II, M.D. '73, John W. Foust, M.D. '55, Darlyne Menscer, M.D. '79, and Mack W. White III, M.D. '79. Wake County achieved a 44 percent rate with commitments totaling $60,642, while 36 percent of Mecklenburg County alumni committed $48,505.

In competition between the classes, the 25th reunion class, led by Joseph P. Archie Jr., M.D. '68, edged out the 30th reunion class, chaired by Tom S. Rand, M.D. '63, with 63 percent of its alumni taking part in the campaign as compared to 60 percent for the class of 1963. However, the tables turned in dollars committed in gifts and pledges as the class of 1963 raised $41,925 compared to $27,650 raised by the class of 1968.

The class of 1943 also participated in the Loyalty Fund campaign with a stellar 83 percent of its alumni raising $26,428 in gifts and pledges, McNeer said.

*Fiftieth reunion campaign co-chair Frank Reynolds, M.D., thanks the class of 1943 for its fund-raising effort resulting in more than $26,000 and an 83 percent participation rate. Co-chair William Hubbard Jr., M.D., and other class and county campaign chairs look on as Dean Bondurant shows off the big check.*

## –STEERING COMMITTEES

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Hickory Corners, MI
Frank R. Reynolds, M.D.
*Co-Chair*
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Greensboro, NC
John R. Chambliss, Jr., M.D.
Rocky Mount, NC
David S. Citron, M.D.
Charlotte, NC
James R. Collett, M.D.
Morganton, NC
James B. Greenwood, Jr., M.D.
Charlotte, NC
George L. Jordan, Jr., M.D.
Houston, TX
Sarah T. Morrow, M.D.
Raleigh, NC
Albert Stewart, Jr., M.D.
Fayetteville, NC
Kenan B. Williams, M.D.
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Asheville, NC
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Richmond, VA
Robert J. Cowan, M.D.
Winston-Salem, NC
Dave M. Davis, M.D.
Atlanta, GA
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Longmont, CO
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Horace K. Sawyer, Jr., M.D.
Stone Mountain, GA
Samuel E. Scott, M.D.
Burlington, NC
Richard W. Shermer, M.D.
Chapel Hill, NC
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Friendswood, TX
W. Landis Voigt, M.D.
Edenton, NC
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Chocowinity, NC
Roy A. Weaver, M.D.
Fayetteville, NC
David R. Williams, M.D.
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Stockton, CA
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Norfolk, VA
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# News Briefs

## Changing Cell Shapes Has Promise For Disease Treatment

If you feel dehydrated, you drink something, and if your body has too much water, your kidneys let you know. Individual cells in the body also regulate their water concentration. Scientists knew this, but they didn't know how the cells sensed that the water concentration was perturbed — until now.

"Nobody had any idea how this works, but now we have some idea," said John C. Parker, M.D., Kenan Professor of Medicine. This finding was recently published in the *Proceedings of the National Academy of Science*.

The research finding may be helpful for people with sickle cell disease and brain injury, he said. "Anything we can do to influence cell volume has potential medical value in the future," he said.

Working with Craig Colclasure, research associate, Parker determined that an activity called macromolecular crowding, crowding of proteins inside the cell, plays an important role in causing any shrinking or swelling. "From our studies with red blood cells, we think that cells perceive their volume by how crowded the hemoglobin protein molecules are inside," said Parker, who has been studying the problem of cell volume control for 30 years.

"From this work, we will be able to do other studies to fool shrunken sickle cells into thinking they should be normal-sized, or convince swollen cells in patients with brain injuries that they should be smaller. If we are successful, we could prevent the devastating symptoms associated with these diseases, as well as the symptoms associated with other diseases involving cell volume," he said.

The investigators' current research involves trying to manipulate the ability of proteins to crowd or be crowded. "We have discovered a number of ways to make red blood cells think that they are bigger than they are, but so far we haven't discovered a way to make a cell think it has shrunk — but we are working on it."

## Miniature Devices May Detect Disease Earlier

In the future, when patients come to see their doctor or dentist, they might have a small amount of blood, saliva, urine or other body fluid analyzed with a biosensor.

These biosensors would enable doctors to detect ailments such as Alzheimer's disease, other dementias, heart attacks and cancers earlier than is currently possible, and enable patients to be treated much sooner, according to Robert Kusy, Ph.D., professor in the School of Dentistry and in the biomedical engineering department of the School of Medicine.

By using biosensors — miniature detection devices that can be wires as thin as a human hair, or microchips similar to those found in a computer — physicians will be able to determine when a patient becomes sick long before any obvious symptoms are experienced, Kusy said.

"Today, most diagnoses of disease are based on a patient's symptoms, but diseases are present long before a patient begins to feel sick," he said.

Kusy believes that using biosensors will lead to an entirely new technology, "interceptive diagnostics." For this new field, doctors routinely would use biosensors to measure a patient's body fluids for initial levels of various biochemicals, such as calcium, potassium, glucose or proteins.

To use the biosensors, a doctor would just place a biosensor into a sample of a patient's body fluids and receive a nearly instantaneous reading when the specific chemical reaction occurs — for example, a protein-enzyme reaction — that releases protons that can be sensed by the electrode on the tip of the biosensor or in the well of a microchip.

*The routine use of biosensors for interceptive diagnostics may be realized in this century.*

# News Briefs

Over a period of time, the doctor would use biosensors to re-measure the biochemical levels of these proteins or enzymes to determine if there are any changes. According to Kusy, these changes can reflect the onset of different diseases, which can then be treated. "Early diagnosis and subsequent treatment have been shown to be the most successful cure for many types of cancers and for heart disease," he said.

"Making biosensors is not new; the expanded applications are," he said. "What my colleagues and I do is synthesize polymers that are derivatives of polyvinyl chloride along with plasticizers, make them more durable and conductive, and prevent them from leaching into surrounding tissue — which causes false readings.

"We are unique in being part of a team of interdisciplinary researchers who belong to the Center for Emerging Cardiovascular Technologies, which involves researchers at UNC, Duke University and North Carolina State University. The Center is the only biomedical engineering-oriented one in the country. One of its four major goals is to improve biosensors."

Kusy said the routine use of biosensors may be realized in this century. "Interceptive diagnostics may help medicine a great deal," he said. Physicians will be treating patients, who have an illness, even before those individuals realize they are sick. Physicians could become the modern day soothsayers, not only forearmed, but also forewarned by the capabilities of high technology."

## Elion Presents Lecture On Lifelong Research

As the Distinguished Lecturer in Medical Sciences for 1993, Nobel prize winner Gertrude Elion, Ph.D , adjunct professor of pharmacology at UNC and Scientist Emeritus at Burroughs Wellcome Company, discussed her lifelong research, the fields it touched and its seminal result in her presentation at the UNC School of Medicine in March.

*Gertrude Elion, Ph.D.*

Her research, done with George Hitchings, Ph.D., adjunct professor of pharmacology at UNC and Scientist Emeritus at Burroughs Wellcome, has contributed significantly to the treatment of several diseases including acute childhood leukemia, rheumatoid arthritis and numerous illnesses caused by herpes-type viruses.

Addressing an audience composed mostly of medical students, Elion said "I will be talking about things that happened long before you were born."

Starting in the 1940s, she and Hitchings began studying purines and pyrimidines, building blocks of DNA. They hoped to find a mechanism that would antagonize the growth of cancerous cells as well as bacteria and viruses. This research occurred before the structure of DNA was fully known in 1953. "It may seem strange to you," she said, "that there was ever a time that people didn't understand that DNA was the genetic material, or that we knew almost nothing about the structure of DNA."

Elion and Hitchings developed 6-mercaptopurine, which within two years from when it was synthesized was on the market to treat acute leukemia in childhood. "At no time in your lifetime will you see a drug go from synthesis to being an approved drug for clinical use in two years," she said.

At the time, only 5 percent of untreated children lived for one year. After treatment with 6-mercaptopurine, 50 percent of these children survived one year or longer, Elion said.

While 6-mercaptopurine was not a cure, this research led other investigators to develop different drugs. Now 80 percent of the children diagnosed with this disease are cured, and 6-mercaptopurine is still used as part of the treatment.

Wanting to improve the effectiveness of 6-mercaptopurine, her research continued and led to the development of a derivative of 6-mercaptopurine called azathioprine or Imuran, which inhibits the immune response. Today, azathioprine is one of the drugs of choice to be prescribed for transplant patients to prevent rejection. This drug also is useful in treating patients with autoimmune disorders including rheumatoid arthritis.

"Imuran had taken us off on a tangent to immunology and we decided that we better go back to see if we couldn't improve on 6-mercaptopurine in a different way," Elion said. At this time, she helped to develop a compound called allopurinol that is useful for treating gout and for cancer patients who receive chemotherapy or radiation treatment.

In the late 1960s, Elion's research turned to developing antiviral agents, which at the time were almost nonexistent because other researchers believed that inhibiting viral DNA would also inhibit DNA synthesis in normal cells.

"This area of research proved to be our biggest success," she said. Her research lead to the development of acyclovir, which is extremely effective in inhibiting DNA synthesis in herpes-type viruses. These viruses cause a variety of diseases including encephalitis, cold sores, chicken pox, pneumonia and mononucleosis.

This drug is the treatment of choice for encephalitis, and also is used as a prophylactic agent for preventing frequent recurrences for genital herpes, and for treatment of immunocompromised patients including transplantation patients, leukemia patients and AIDS patients.

## Cellular Studies May Save Human Lives

Each year about one million people in the world have heart attacks. In patients who survive there is often irreversible cell damage, leaving patients with a weakened heart. Heart cells cannot be regenerated.

But tissue damage and cell death may be preventable, according to investigators at the UNC School of Medicine.

In studies in isolated cells, the investigators determined that cells naturally become more acidic, or have a lower pH, when there is a lack of blood flow. However, when the flow is restored tissue damage occurs.

Although oxygen had been believed to be responsible, the investigators found that when the cell's acidity level was returned to normal, cell damage or death occurred regardless of whether or not oxygen flow was restored. However, when they restored oxygen without changing the pH, there was no injury.

"This effect of pH, which is a new phenomena, has not been described before," said John J. Lemasters, M.D., Ph.D., professor in the Department of Cell Biology and Anatomy.

"The drop in acidity actually delays the onset of irreversible cell injury. Even a small drop in acidity has this very profound protective effect, but this natural action has a payback when the acidity level returns to normal. We call this the pH Paradox, because it seems paradoxical to restore a physiological condition to normal and actually cause damage.

"If we can prevent cell damage, we might be able to rescue the heart tissue from irreversible damage," he said. "We have shown that you can prevent this pH Paradox if you don't change the pH during reperfusion (when the blood begins to flow into the tissue) and you re-oxygenate first and then slowly raise the pH. This, however, is not to say that oxygen does not have any effect."

In research with Wayne E. Cascio, M.D., assistant professor in the Department of Medicine, Lemasters has determined that administering some pharmacologic agents to the cells can block the rise of internal pH and prevent cell damage.

*1993 Zollicoffer Lecturer Ezra C. Davidson Jr., M.D., accepts a gift of appreciation from second-year medical student Alisa Hughley. Davidson addressed a capacity crowd at 103 Berryhill Hall about good prenatal care and its effects on society. Davidson is professor and chair of the Department Obstetrics and Gynecology at the Charles R. Drew University of Medicine and Science in Los Angeles. The Zollicoffer Lectureship was established in 1981 by members of the Student National Medical Association and named in honor of Lawrence Zollicoffer, M.D., the fourth African-American graduate of the UNC School of Medicine and founder of the Garwyn Medical Center in Baltimore, MD.*

## New Radiation Treatment Achieves Better Treatment Precision

Physicians at the UNC medical center are now using stereotactic radiosurgery to treat patients with brain tumors and other head lesions. Doctors can deliver a very high radiation dose precisely, resulting in very little radiation exposure to the healthy brain.

The advantage of this new technique is to "create near total destruction of the lesion without having to perform invasive surgery," said Bradford B. Walters, M.D., assistant professor of neurosurgery. The cells in the lesion die over a period of weeks or months from radiation damage.

Stereotactic radiosurgery treatments, which use specialized cobalt machines and radiation accelerators, have shown good clinical results, especially for patients with inoperable brain lesions, he said.

# News Briefs

The treatment procedure is painless and takes about 30 to 45 minutes.

"Patients with lesions deep in the brain or lesions located close to critical structures will benefit the most from the new technique," Walters said. Such lesions include benign tumors at the base of the skull and metastatic brain cancers. Patients born with abnormal blood vessel collections in the brain, which have a tendency to hemorrhage and cause strokes, also will benefit.

According to Walters, most patients can be treated with one or only a few treatments, compared to 25 to 30 sessions required with conventional radiation therapy.

Although there are a number of hospitals providing stereotactic radiosurgery, Sha Chang, Ph.D., medical physicist and clinical assistant professor of radiation oncology, emphasizes that "UNC Hospitals' program is unique in its technical resources. We have a therapeutic accelerator (radiation treatment machine) dedicated to the stereotactic radiosurgery treatment for patients' convenience. And we have one of the country's best 3-D medical imaging systems."

## Program Helps Children With Learning Disabilities

A program to help school teachers identify students with mild memory and attention disorders has been developed by researchers at the UNC School of Medicine.

The object of the program, called "Schools Attuned" is to assist middle school teachers "to develop an understanding of all areas of cognition, such as memory, attention or language problems, be able to identify them, and then specifically modify their instruction to meet a child's needs," said Carl W. Swartz, Ph.D., clinical scientist in the Clinical Center for the Study of Development and Learning (CDL). The program was designed by researchers affiliated with the Center and was pilot tested in schools in Cumberland and Durham counties.

The preliminary results from analyses of the program, which is being used in eight school districts nationwide, indicate that teachers have improved their ability to identify students with attention, memory and social problems, compared to teachers who have not participated in the "Schools Attuned" project.

Additionally, students of teachers in this program improved both their behavior and grades as compared to students whose teachers did not participate.

"We believe that the catalysts for improving the outlook for students who harbor neurodevelopmental dysfunctions are classroom teachers who align the instructional material with the student's developmental level," Swartz said.

Researchers at the CDL provide teachers with sufficient knowledge, skills and learning experiences to be considered "early adolescent developmental specialists", enabling them to meet the needs of learning disabled students, Swartz said.

## National Trauma Registry Provides Improved Patient Care

What is the best way to treat an injured patient with a ruptured spleen? Does a patient recover faster from a broken femur if the leg is placed in a cast or if a rod is surgically inserted into the leg to stabilize it?

It is hoped that physicians can find answers to these and other questions by consulting a newly created national trauma registry, developed by a team of researchers led by Robert Rutledge, M.D., assistant professor of surgery at the UNC School of Medicine for the American College of Surgeons.

Rutledge said the registry, NATIONAL TRACS, is a resource for physicians and hospitals to consult to analyze information about how trauma care is delivered across the United States.

"NATIONAL TRACS is a database that puts all the critical data concerning trauma care across the country at your fingertips," Rutledge said. "The goal of this registry is to improve the quality of care for patients. By having nationally standardized information, trauma centers will be able to develop important guidelines to improve treatment and prevent injury from trauma — the leading cause of death in Americans under age 44. Nearly 100,000 people die each year from trauma-related injuries.

"The database, which is easy to use, has data on numerous patients to help physicians make the best possible clinical decisions," he said. "Additionally, the database provides information about quality assurance and cost efficiency of care, and several other topics."

According to Rutledge, although many hospitals, regions or states may collect data on trauma injury and care, this information is not standardized. "Before we developed NATIONAL TRACS, we didn't know what was happening around the country regarding trauma care.

"The exciting thing about the database is that we may be able to improve the care of trauma patients with a computer. NATIONAL TRACS enables us to keep track of what occurs in trauma care. By the very fact of knowing what is going on, we'll be better able to make clinical decisions," he said. "For example, the data in North Carolina suggests that not operating on a child who has a ruptured spleen results in better patient outcome than when the organ is removed."

Rutledge was chosen to develop the registry because of his prior experience in developing the North Carolina Trauma Registry in 1987.

The national database is funded by the American College of Surgeons and is housed in Chicago.

## Pediatric Heart Transplant Patients Celebrate Life

Four pediatric heart transplant patients recently returned to UNC Hospitals to participate in the hospital's first pediatric heart transplant patient reunion.

One of them, 3-year-old James Watkins of Louisburg, is the first pediatric heart-lung tranplant patient in North Carolina. He was born with a complex congenital heart defect which led to a severly weakened heart and damaged lungs.

Watkins is one of only 25 children in the world under the age of 6 who have undergone combined heart-lung transplantation, said Michael Mill, M.D., assistant professor in the Division of Cardiothoracic Surgery, and director of the Heart and Heart-Lung Transplant Program. "This procedure is a natural outgrowth of our programs in heart and lung transplantation and our commitment to the care of children with congential heart disease," he said.

The youngest of the four patients was 7-month-old Kelsey Carrol of Hillsborough, who received her new heart in December. She was born with two large holes in her heart.

UNC began doing heart transplants in October 1986 and has performed 68, including three heart-lung transplants. Heart transplant recipients at UNC have shown an 82 percent one-year survival rate, a 72 percent two-year suvival rate and a 60 percent 5-year survival rate. Mill said UNC statistics are in line with national survival rates, which are 78 percent for one year, 70 percent for two years and 60 percent for five years.

## UNC Clinical Research Center Rated Best in Nation

A team of outside evaluators has given the Verne S. Caviness General Clinical Research Center at the UNC School of Medicine the highest rating of any comparable center at American medical schools.

The rating was the highest anyone can remember, according to Bernard Talbot, acting director of the government's General Clinical Research Centers Program. The program is the branch of the National Institutes of Health that funds and monitors the facilities.

The Caviness center will receive more than $15 million in NIH research support over the next five years, Talbot said.

"The center at the UNC School of Medicine did just great in the most recent site visit," Caviness said. "They have truly excellent research projects going on in Chapel Hill compared with other medical schools, and Dr. Eugene Orringer, the director, is an outstanding leader." Caviness, who recently celebrated his 98th birthday, lives in Raleigh.

"I want to express my unqualified respect and appreciation for the verve and leadership Dr. Orringer gave to produce this extraordinary result," said Dean Stuart Bondurant, M.D. "The application for renewal of the center is simply the best I've ever seen in some 30 years of reviewing GCRC applications."

## 6 Presented Distinguished Service Awards

The UNC School of Medicine and the Medical Alumni Association presented six individuals with Distinguished Service Awards at the UNC Medical Alumni Association meeting in April.

Sharing the limelight were joint recipients James H. and Jesse E. Millis of High Point, who were honored for more than 40 years of service to the High Point community and to the UNC School of Medicine.

Others honored were: Richard A. Boyd, M.D., chief of the Department of Obstetrics and Gynecology at Davis Hospital in Statesville; Joseph D. Russell, M.D., of Wilson, a practicing nephrologist and former president of the UNC Medical Alumni Association; I. Kelman Cohen, M.D., Ph.D., of Richmond, chair of the Division

*Millis*

*Millis*

*Boyd*

*Russell*

*Cohen*

*Raye*

of Plastic and Reconstructive Surgery at the Medical College of Virginia; and John R. Raye, M.D., of Farmington, CT, chair of the Department of Pediatrics at the University of Connecticut School of Medicine.

Mr. and Mrs. Millis established the James H. and Jesse E. Millis Foundation in 1989 to formalize their philanthropic support of a broad array of organizations providing worthwhile services to the High Point community. "Community leaders agree that the support of civic and charitable institutions by the Millises is mes-

# News Briefs

timable," said Dean Stuart Bondurant, M.D. According to one High Point community leader, "no couple has made any greater contribution to the welfare and well-being of this community."

The Millises are longtime supporters of higher education in High Point and the state, most especially with the UNC School of Medicine and High Point University. Mr. Millis serves as the volunteer chair of the Bicentennial Campaign for the UNC School of Medicine and as chair of the Board of Directors of the Medical Foundation of North Carolina, Inc.

Mrs. Millis has helped shape the civic and cultural environment in High Point as a key player in a diverse range of organizations and community efforts. Driving cancer patients to medical treatment sessions, making mealtime deliveries to elderly and home-bound people receiving Meals-on-Wheels, and serving breakfast to national and international visitors during the International Furniture Market are just a few of her endeavors. Mrs. Millis also supports her community through involvement in the Junior League of High Point and as a strong supporter of Crime Stoppers.

Boyd attended medical school at UNC from 1952 to 1956. After completing internship and residency training and military service with the U.S. Navy, Boyd became chief of the Department of Obstetrics and Gynecology at Davis Hospital in Statesville in 1962.

"It has been said of Dr. Boyd, who is a founding member of the Statesville Medical Group, that he 'has been the soul and conscience of the medical profession in Statesville' for the last 30 years," Bondurant said. "He has contributed significantly to the medical profession in this state as an active member of the North Carolina Medical Society and to the School of Medicine through his involvement in our Medical Alumni Association, of which he served as president in 1983 and 1984. Dr. Boyd has been an inspiration to others by his example of maintaining the highest standard of medical ethics and patient care," Bondurant said. "Patients, colleagues, friends and family know and love Dr. Boyd for his laughter, energy and enthusiasm."

Russell's special relationship with UNC began in the early 1960s when he came to Chapel Hill for undergraduate studies. He completed medical school, internship and residency training, as well as a fellowship in nephrology at UNC. Russell served as president of the UNC Medical Alumni Association from 1987 to 1988 and currently serves as chair of the Medical Alumni Endowment Fund.

"His leadership in and dedication to the specialty of nephrology led to the establishment of outpatient kidney dialysis units in three eastern North Carolina communities. He has enhanced his profession, too, by developing standards of quality assurance that are used throughout the state as models for excellence," Bondurant said. "He truly is never idle, always making time to do what is important to him and to those around him."

Cohen received his medical degree from the UNC School of Medicine in 1963. He completed residency training in surgery and served as chief resident and part-time instructor of surgery at UNC before heading to Johns Hopkins for residency training in plastic surgery. He served two fellowships at the National Institutes of Health in Baltimore before being invited to head the new Division of Plastic and Reconstructive Surgery at the Medical College of Virginia in 1972.

"In his 20 years as chair, Dr. Cohen has developed a highly respected clinical, research and training program in his specialty," Bondurant said. "Students and physicians who have trained under him are themselves becoming leaders in the field, following his example of accepting only the highest standards in academic surgery and patient care. His excellence and his stature in plastic and reconstructive surgery is evidenced, too, by the fact that his recently edited book on wound healing management is rapidly becoming the definitive text on the subject," Bondurant said.

Chair of the Department of Pediatrics at the University of Connecticut School of Medicine, Raye began his career in pediatrics at the UNC School of Medicine as a medicine and pediatrics intern and a pediatrics resident. "Dr. Raye is a nationally and internationally renowned neonatologist who has dedicated his nearly 30-year medical career to improving health care for all children — to ensuring that each child has the best possible opportunity for a healthy start of life," Bondurant said. "He is a leader in prenatal and neonatal research who has provided valuable insight into understanding problem pregnancies and health care issues associated with premature and newborn babies.

"Dr. Raye is a physician who sets the highest standards for himself and others, a mentor whose counsel his students still seek today and a friend whose support they cherish," Bondurant said.

## Sparling Receives Distinguished Faculty Award

P. Frederick Sparling, M.D., chair of the Department of Medicine at the UNC School of Medicine, has received the 1993 Distinguished Faculty Award, presented annually by the Medical Alumni Association.

*Sparling*

James B. Sloan, M.D. '70, of Wilmington, association president, presented the award April 2 during Alumni Weekend in Chapel Hill.

"Dr. Sparling is a remarkable chair of medicine," said Dean Stuart Bondurant, M.D. "His comprehensive grasp of molecular biology and genetics as well as of organ system physiology and clinical science makes him an extraordinary translator

of modern medical science to patients, families, students, trainees and colleagues. He achieves this translation with compassion, astounding effectiveness and humility."

Sparling was chair of the medical school's Department of Microbiology and Immunology from 1981 until 1989, when he assumed his current position as chair of the Department of Medicine.

Sloan said Sparling is admired highly as a gifted educator. "One former student said Dr. Sparling actually enjoys being a university professor...and his interest in students is genuine and real," Sloan said.

Sparling is a graduate of Princeton University and received his medical degree from Harvard Medical School in Boston. He completed post-graduate training at Massachusetts General Hospital in Boston, prior to joining the UNC faculty in 1969 as an assistant professor.

He was promoted to associate professor in 1972 and to professor in 1976. Sparling was named the J. Herbert Bate Professor of Medicine and Microbiology and Immunology in 1986.

## UNC Medical School Alumnus to Head Human Genome Program

Francis S. Collins, M.D. '77, Ph.D., of the University of Michigan Medical Center has been named to head the National Center of Human Genome Research at the National Institutes of Health. His appointment was announced in April by Department of Health and Human Services Secretary Donna Shalala.

Collins, co-discoverer of the genes for cystic fibrosis, neurofibromatosis and Huntington's disease, is a professor of internal medicine and human genetics at the U-M Medical School.

Collins takes over leadership of the human genome program at a pivotal time in the program's history. While the progress of the human genome project to date has been excellent, Collins says he plans to establish new goals for the next five years and hopes to have a new agenda defined by late summer. His plans also include creating an intramural progam in human genetics that will increase funding and laboratory space and attract talented researchers to the NIH campus.

*Albert R. Jonsen, Ph.D., was the lecturer for the 11th Annual Spicer-Breckenridge Memorial Lecture in April. He presented "Fighting From the Fortress of Medicine: Ethics and Complexity." Jonsen is professor of ethics and medicine at the University of Washington at Seattle.*

# Faculty Notes

## Wilson Professorship Established

The Division of Orthopaedics at the UNC School of Medicine has established a $500,000 distinguished professorship to honor **Frank C. Wilson, M.D.**, Kenan Professor of Surgery and chief, Division of Orthopaedics at UNC.

The professorship will contribute to the School of Medicine's $47 million pledge to the Bicentennial Campaign for Carolina and was announced in March at a formal reception and dinner at the Kenan Center at UNC.

"I am very pleased and honored that colleagues and friends chose to establish a professorship as a way to provide added support to the Division of Orthopaedics," Wilson said.

"I am equally as proud that the support came from individual donations by many people, largely past residents and trainees and faculty members at UNC and other medical schools," he said.

"The Frank C. Wilson Distinguished Professorship in Orthopaedics pays tribute to a respected clinician, teacher and researcher whose leadership has played a critical role in shaping orthopaedic practices and policies not only here at the medical school, but throughout the United States and around the world as well," said Dean Stuart Bondurant, M.D.

"Dr. Wilson's fine work and dedication have resulted in an exemplary orthopaedic program at UNC," said George Sheldon, M.D., chair of the Department of Surgery.

"A professorship to honor him is extremely fitting in that it will enable us to maintain the standard of excellence in clinical care, teaching and research that Dr. Wilson has established by helping us to attract and retain highly qualified professionals to lead our orthopaedic program," Sheldon said.

A graduate of Vanderbilt University and the Medical College of Georgia, Wilson completed his residency in surgery and orthopaedics at the Columbia Presbyterian Medical Center in New York City in 1964.

*Wilson*

He then joined the faculty of UNC, where he became chief of orthopaedics in 1967 and director of the School of Medicine's musculoskeletal curriculum in 1971.

Wilson's research has focused on knee joint replacement, ankle injuries, musculoskeletal infections and medical education. In 1992, he was honored with the university Thomas Jefferson Award for best exemplifying the ideals of Jefferson through personal influence, teaching, writing and scholarship.

**Kenneth M. Brinkhous, M.D.**, Alumni Distinguished Professor Emeritus of Pathology, was recently honored as the first recipient of 50 years of continuous funding from the National Institutes of Health by the NIH's Hematology Study Section. His individual research grant on hemophilia and blood coagulation was initially funded in 1947.

## UNC Receives Grants for Cardiovascular Research

Two UNC School of Medicine researchers were recently awarded grants totaling $9 million from the National Institutes of Health for cardiovascular research.

**Gilbert C. White II, M.D.**, associate professor of medicine, has been awarded a $4.8 million grant to study how proteins on the surface of platelets — cells found in blood that play an active role in clotting — bind platelets to each other and to tissues in the blood vessel wall.

The research could lead to the development of new drugs to treat blood clots that cause heart attacks and strokes. White is also associate director of the Center for Thrombosis and Hemostasis.

Supported by a five-year $4.2 million grant, **Leonard Gettes, M.D.**, Henry A. Foscue Distinguished Professor of Cardiology, will attempt to discover why heart attacks lead to disorganization and interruption of electrical activity of the heart. In some cases, damage to a small area of the heart kills the patient not because the heart tissue has died, but because the heart is unable to act as an effective pump.

**Bruce Caterson, Ph.D.**, Norfleet-Raney Professor of Research in Orthopaedics and professor of biochemistry and biophysics, has been named president of the Orthopaedic Research Society.

Caterson, who is considered a leading authority in research into the biochemical mechanisms elucidating how joints respond to arthritis and injury, joined the UNC faculty in 1989. He has written or co-written more than 75 scholarly publications and has served on the editorial boards of the *Journal of Biological Chemistry and Archives of Biochemistry and Biophysics*.

The Orthopaedic Research Society was founded in 1954 and consists of 1,480 members including orthopaedic surgeons, bioengineers and basic science researchers. The Society publishes the *Journal of Orthopaedic Research*.

Several UNC School of Medicine faculty members were recently selected to receive 1993 Junior Faculty Development Awards.

They are: **John M. Thorp Jr., M.D.**, assistant professor of obstetrics and gynecology; **Eileen J. Burker, Ph.D., Melody F. Harrison, Ph.D., Rebecca J. Laudicina, Ph.D., James W. Montgomery, Ph.D.**, and **Henry D. Wong, Ph.D.**, all assistant professors in the Department of Medical Allied Health Professions; **Thomas R. Skopeck, Ph.D.**, associate professor of pathology; **Enrique Criado, M.D., Samir M. Fakhry, M.D.**, and **Kim**

**R. Jones, Ph.D.**, all assistant professors in the Department of Surgery; and **John H. Gilmore, M.D.**, assistant professor of psychiatry.

Each award is worth $3,000 and faculty members will use the money for academic projects over the next year. Funding comes from the UNC Foundation Fund Inc. and International Business Machines Corp.

## Mattern to Chair U.S. Medical Education Group

**William D. Mattern, M.D.**, associate dean for academic affairs and professor medicine, has been selected chair-elect of the Association of American Medical Colleges Group on Educational Affairs.

Mattern will serve as chair-elect in 1993 and chair in 1994. Charles P. Friedman, director of the Office of Educational Development, was chair in 1992.

Mattern said he plans to address pressing issues facing medical education institutions, including shifting programs into the ambulatory care setting, increasing minority enrollment and expanding the supply of primary care physicians.

The association, whose membership includes 142 medical schools in the United States and Canada, represents 72,000 faculty members and is headquartered in Washington, D.C.

**Celia R. Hooper, Ph.D.**, clinical associate professor of speech and hearing sciences, has received the Community Achievement Award for Sertoma of North Carolina.

The award recognizes "outstanding accomplishments in community service." It was given by the civic group, whose community, state and national focus is related to speech and hearing disorders.

Hooper, clinic director of the Division of Speech and Hearing Sciences, currently serves as president of Meridian Sertoma club of Chapel Hill and Sertoma Foundation representative for the Eastern North Carolina District of the Atlantic Region of Sertoma.

*Hooper*

**Steven Zeisel, M.D., Ph.D.**, professor and chairman of the Department of Nutrition at the UNC School of Public Health, has been named professor and chair of the newly formed Department of Nutrition at the UNC School of Medicine. He will retain his appointments in the UNC School of Public Health.

*Zeisel*

"Dr. Zeisel's leadership skills and experience in all areas of nutrition will be tremendous assets to the School of Medicine in providing the best possible nutrition education to its students," said Dean Stuart Bondurant. "His appointment to this position will additionally strengthen the existing links between the two schools."

**Oliver Smithies, D. Phil.**, is one of five winners of the 1993 Gairdner Foundation International Awards for contributions to medical science. A pioneer in the field of gene targeting, Smithies will recieve $30,000 in Canadian funds October 22 at the University of Toronto and present a lecture. He also won a Gairdner Award in 1990. Smithies and another scientist, Mario Capecchi of the University of Utah, will be recognized for independently creating the gene targeting technique, which allows scientists to disable a single gene in a living mouse and study the consequences.

"Dr. Smithies is a superlative researcher whose dedicated work already has had a strong and demonstrable impact on medical science and will have an even greater impact in years to come," said Dean Stuart Bondurant, M.D.

The U.S. Food and Drug Adminsitration has re-approved manufacture of the Hulka clip, a tiny contraceptive device that resembles a clear plastic clothespin with teeth.

Invented and patented at the UNC School of Medicine by **Jaroslav Hulka, M.D.**, professor of obstetrics and gynecology, the device has been used safely and effectively since 1975 to sterilize millions of women in the United States and other countries.

The clip is inserted through a small incision near a woman's navel and attached to the fallopian tubes, blocking sperm and preventing pregnancy. The clip, which is made in London and has been used as far away as Australia, is the most reversible form of sterilization in the world. It was recently introduced by Hulka in Russia.

**Brian Popko, Ph.D.**, assistant professor of biochemistry and biophysics, has received the 1993 Jordi Folch-Pi Award from the American Society for Neurochemistry. Popko was recognized for his work on myelin, the multilayered membrane sheath that surrounds nerve axons and is essential for normal nervous system functioning. A leader in transgenic and recombinant DNA technology, Popko is the 12th winner of the Folch-Pi Award given annually since 1982. The prize includes $1,500 for travel expenses to attend scientific conferences.

*Popko*

# Class Notes

## Manning Berryhill Club

**William S. Wall, M.D. '31,** reports that he has "retired to dialysis after 57 years and 5000 deliveries." He lives in Rocky Mount.

## 60s

**Allen H. Moore Jr., M.D. '62,** has retired as a U.S. Air Force colonel on service connected disability. He says that when the weather is good, he goes "fishing in the gulf. My house is on the bayou and my boat dock at the back door." He lives in Pass Christian, MS.

**J. Andrew Burnam, M.D. '63,** was voted the winner in the category, Cosmetic Surgeon, in "the Best of Southwest Florida, 1992 News-Press Reader's Choice Poll." He is director of the Fort Myers Centre for Facial Plastic Surgery and the Fort Myers Ear, Nose and Throat Clinic.

## 70s

**Hugh Hobbs, M.D. '74,** is the regional medical director for Sunlife ObGyn, Inc., which provides care for indigent women nationwide. He lives in Harwood, MD.

**Rubin Franklin Maness, M.D. '76,** is a pediatrician at Goldsboro Pediatrics. He is also co-medical director of Camp Challenge, a children's asthma camp. He also serves as vice president of the American Lung Association of North Carolina and as chair of the Joint Committee on Asthma, ALANC - NC Thoracic Society. He recently wrote an article for the N.C. Medical Journal entitled "Managing Pediatric Asthma in North Carolina."

**Susan T. Snider, M.D. '78,** has been selected to be a major speaker at the American Academy of Family Practice national meeting in October. She will speak on Aspects of Wilderness Medicine. She is a member of the board of directors of the Wilderness Medical Society.

## 80s

**John Markushewski, M.D. '80,** has been appointed Advanced Cardiac Life Support Affiliate Faculty through the Military Training Network. He is a major in the U.S. Air Force Reserves. He is also a physician advisor to Suburban Ambulance Service in Decatur, AL, and Ardmore, AL, and also serves as medical director of the emergency department of Decatur General Hospital.

**Jeff L. Creasy, M.D. '80, HS '85,** is assistant professor of radiology at Vanderbilt University. He was recently elected president of the Society for Computer Applications in Radiology.

**Chip Howell, M.D. '82,** is a staff neonatologist and medical director of neonatal respiratory care at Wilford Hall USAF Medical Center in San Antonio, TX. He says that he and his family would like to return to the southeastern United States in 1995, and that he would be interested in pursuing challenging clinical academic opportunties.

**Cristin Babcock, M.D. '83,** is in private practice in obstetrics and gynecology in Aloha, OR. She has two children.

**John F. Koepke, M.D. '84,** is a pathology resident at Northside Hospital in Atlanta.

**Ron E. Pruitt, M.D. '84,** recently co-directed a postgraduate course on Flexible Sigmoidoscopy and Early Detection of Colorectal Cancer during the 86th Annual Scientific Assembly of the Southern Medical Association held in San Antonio, TX. He is a specialist in gastrointestinal problems and practices at Nashville Gastrointestinal Specialists, Inc.

**Grayson Rodgers, M.D. '86,** has finished an otology/neurotology fellowship at the House Ear Institute in Los Angeles. He is now practicing at the Birmingham Otology Center and has been named assistant director of the Birmingham Ear Institute in Alabama.

**Laurel Leslie, M.D. '89,** is chair-elect of the American Academy of Pediatrics Residency and Fellowship Section.

**Rick Paul Sessions, M.D. '89,** has spent his third post-graduate year doing research in pediatric urology at UNC. He is scheduled to present at this year's American Urological Association meeting in Nashville, TN, and San Antonio, TX.

## 90s

**Anne Traynor, M.D. '90,** begins her new position at Emory University in Atlanta, upon completion of her chief residency year at the Mary Imogene Bassett Hospital in Cooperstown, NY. She says she "eagerly awaits the challenges ahead."

**J. Todd Williams, M.D. '90,** is a dermatology resident in San Antonio, TX. He and his wife, Denise, had a baby boy last April.

**Trella Cooper, M.D. '91,** has been selected as a resident representative to the pediatric residency review committee at the University of California at San Francisco.

**Pei-Fang Tang, M.S. '91,** a doctoral student in Eugene, OR, reports passing the comprehensive exams.

**Wes Boyd, M.D., Ph.D. '92,** is a psychiatry resident at Cambridge Hospital in Massachusetts. He will be a visiting lecturer at the Harvard Divinity School 1993-94. He also reports that he has a wonderful daughter, born last August.

**Deaths**

**Jay Littleton Bunch, M.D. '45**
**Charles Ray Starling, M.D. '50**
**William R. Beckman, M.D. '58**
**David S. Price, M.D. '90**

# The Courtship of Fulghum

*Mary Susan Fulghum is the new president of the UNC Medical Alumni Association.*

Mary Susan Fulghum, M.D. '71, says she's a firm believer in long courtships. When she says that, she's not only referring to her 25-year marriage to James Fulghum III, M.D. '71, whom she dated seven years before tying the knot, but also to her ongoing relationship with the University of North Carolina and the UNC School of Medicine.

"Long courtships really lend something to relationships to help keep them stable through all the ups and downs," she said.

Her courtship with UNC actually began before she came to Chapel Hill, with a slew of relatives — her grandfather, her father, aunts and uncles — attending the university. She enrolled in 1963, and after graduating in 1967 with a degree in biology and German, was accepted to the UNC School of Medicine, where she graduated with honors.

"We had a wonderful class, very closely knit with 75 students, five of them women. Those were the happiest years of my life. We worked hard and played hard."

In April, Fulghum began another phase in her relationship with the UNC School of Medicine by becoming the first female president of its alumni association.

Fulghum became involved in the UNC Medical Alumni Association in 1986 when she got a call from Bill Wood, M.D. '56, asking her to join the UNC School of Medicine Visiting Committee, which acts as a liaison between the medical school administration and the alumni association. "I had a chance to work with immediate past presidents and to see what issues needed to be addressed, including how to involve more students and alumni in the association." She said that experience stimulated her interest, and last year, she agreed to accept the position of president-elect.

"Dr. Fulghum is one of our more distinguished graduates who has been a leader in the Medical Alumni Association, the community and in professional organizations," said William E. Easterling Jr., M.D., associate dean for alumni affairs and continuing medical education. "We are very pleased that she is our new president."

"It's an awesome and humbling responsibility," she said. "Humbling for the reason that it gives me a great deal of pleasure to be asked by my peers to do this and that they have confidence in me to do the job. Awesome in that it's an opportunity to make great strides in alumni participation and financial support."

Fulghum said she's always felt that there was nothing that she couldn't do if she really set her mind to it.

Many agree that it's not surprising in that she had pioneers as role models: Her aunt, Annie Louise Wilkerson, M.D. '36,

the senior partner at Wilkerson Obstretrics and Gynecology, where Fulghum practices, established one of the first ob/gyn practices headed by a woman in Raleigh in the late 1930s. Her mother, Josephine Kirk, headed the Wake County Department of Social Services for 30 years. Her grandfather, Charles B. Wilkerson, CMED '06, was a family practioner in Raleigh in the early 1900s, and she has two uncles who are physicians, one of whom, Louis R. Wilkerson, M.D., is a partner at Wilkerson Ob/Gyn.

Although she had many family members in the health care field, Fulghum said they never pressured her to go into medicine. "Just the opposite. They always impressed upon me the time commitment involved. But I grew up always thinking that I wanted to be a medical doctor."

During medical school, and her residency and subsequent faculty appointment as assistant professor of Ob/Gyn at UNC, Fulghum said she never felt any pressures because she was a female. "I've always had a positive working relationship with my male peers. And I credit that to the demeanor of the department chair, Dr. Charles Hendricks. He expected a high level of professionalism and he got it." (Hendricks is now chair emeritus of the Department of Obstetrics and Gynecology.)

Fulghum says she plans to carry that same attitude through her tenure as president. Her goals include, achieving a 100 percent alumni participation in the Loyalty and Endowment Funds; looking for innovative ways that medical students and housestaff can interact with alumni socially and professionally; encouraging medical students to become involved in the alumni association; and explaining to alumni how their 1993 gift to the medical school can also count as their contribution to the Bicentennial Campaign for Carolina.

And although she doesn't feel compelled to carry the torch specially for women's issues, she plans to investigate how she can be a facilitator in addressing needs that face female medical students and housestaff, such as child care for medical students and how medical students can combine being a wife, mother and a physician. "Combining it all can be done; it's not easy, though. Female physicians have to make a conscious decision to prioritize and not be ambivalent about their roles as a wife and mother."

Fulghum quickly credits her husband, James, a Raleigh neurosurgeon for helping her have it all —"and being willing to have hot dogs, sometimes, three nights a week." They have two daughters, Molly, 20, a sophomore at Duke, and Emily, 16, who is a junior at Broughton High School in Raleigh.

In addition to her practice and her family, Fulghum is extremely active professionally and in the community, serving as chairman of the Wake County Board of Health's maternal and child health committee, and as a member of the medical advisory committee of Planned Parenthood of the Capital and Coast, the Wake County Medical Society, the Governor's Commission on the Reduction of Infant Mortality and a host of other organizations and societies. She also garnered numerous awards, including the 1992 N.C. Equity Carpathian Award in Women's Health, and the 1992 Community Service award, both presented by the American Medical Women's Association.

Fulghum's work in her church, Edenton Street United Methodist, also fulfills an important aspect of her life. There, she serves as the lay leader and is the senior high school Sunday School teacher.

With such an active life, what does she do to relax? Besides reading, Fulghum and her husband escape to their Chatham County farm, where they raise some 80,000 chickens. "We've agreed that it's the one place we can't take office and hospital work!"

# President's Letter

I am sorry that everyone could not be present for our Alumni Weekend on April 2. Distinguished Service Awards were presented to four very deserving alumni: Dick Boyd, Kel Cohen, John Raye and Joe Russell. Also James Millis Sr. and Jesse Millis of High Point were recognized for their generous support of the medical school. The Continuing Medical Education Program was sponsored by the class of 1973, and the program was very well received.

As most of you know by now, Dean Bondurant will be resigning the deanship in 1994. His leadership has been tantamount to the success of the medical school for the past 13 years. I am sure that the Bondurant era will have a secure place in the history of our fine institution. It has been a pleasure to work closely with the Dean this past year, and his willingness to participate in alumni affairs will always be appreciated.

The political climate is certainly threatening to those of us who have been involved in medicine for a decade or more. We are now having to shoulder a great deal of the blame for the explosive cost of medical care, when we have very little responsibility for the spending. I hope that we will all maintain our current level of dedication to provide the best medical care available, regardless of the political gymnastics being performed in Washington. We must continue to depend on as well as support the institution that has provided for us the knowledge and training to do what we do best — take care of the sick. Challenges lie ahead, but we will prevail if we continue to provide care without regard to race, religion or ability to pay.

I have enjoyed visiting with the various alumni groups across the state. I am very much encouraged by this experience, and I thank you for your support this year. And please, always remember the UNC School of Medicine for the role it has played in your life.

Sincerely,

James B. Sloan

*James B. Sloan, M.D., '70*

# CME/Alumni Calendar

| Medical Alumni Activities | | |
|---|---|---|
| October 29-30 | Fall Medical Alumni Weekend | Chapel Hill |
| | **Continuing Education** | |
| June 5 | Mammography Quality Control | Chapel Hill |
| June 18-20 | Daily Anesthetic Challenges 1993 | Hilton Head |
| June 19 | Mammography Quality Control | Charlotte |
| June 26 | 1993 Medicolegal Seminar | Chapel Hill |
| June 21-July 2 | Literacy and AAC Summer Course | Chapel Hill |
| July 10-11 | Ideokinesis: The Art & Science of Movement Therapy | Chapel Hill |
| July 12-16 | TEACCH Summer Training (Elementary/Adolescent) | Chapel Hill |
| July 19-23 | TEACCH Summer Training (Elementary/Adolescent & Preschool) | Chapel Hill |
| July 26-30 | TEACCH Summer Training (Elementary/Adolescent & Preschool) | Chapel Hill |

For more information about CME courses or alumni activities, contact the Office of Continuing Medical Education and Alumni Affairs, School of Medicine, 231 MacNider Building, UNC, Chapel Hill, NC 27599, or call 1-800-862-6264.

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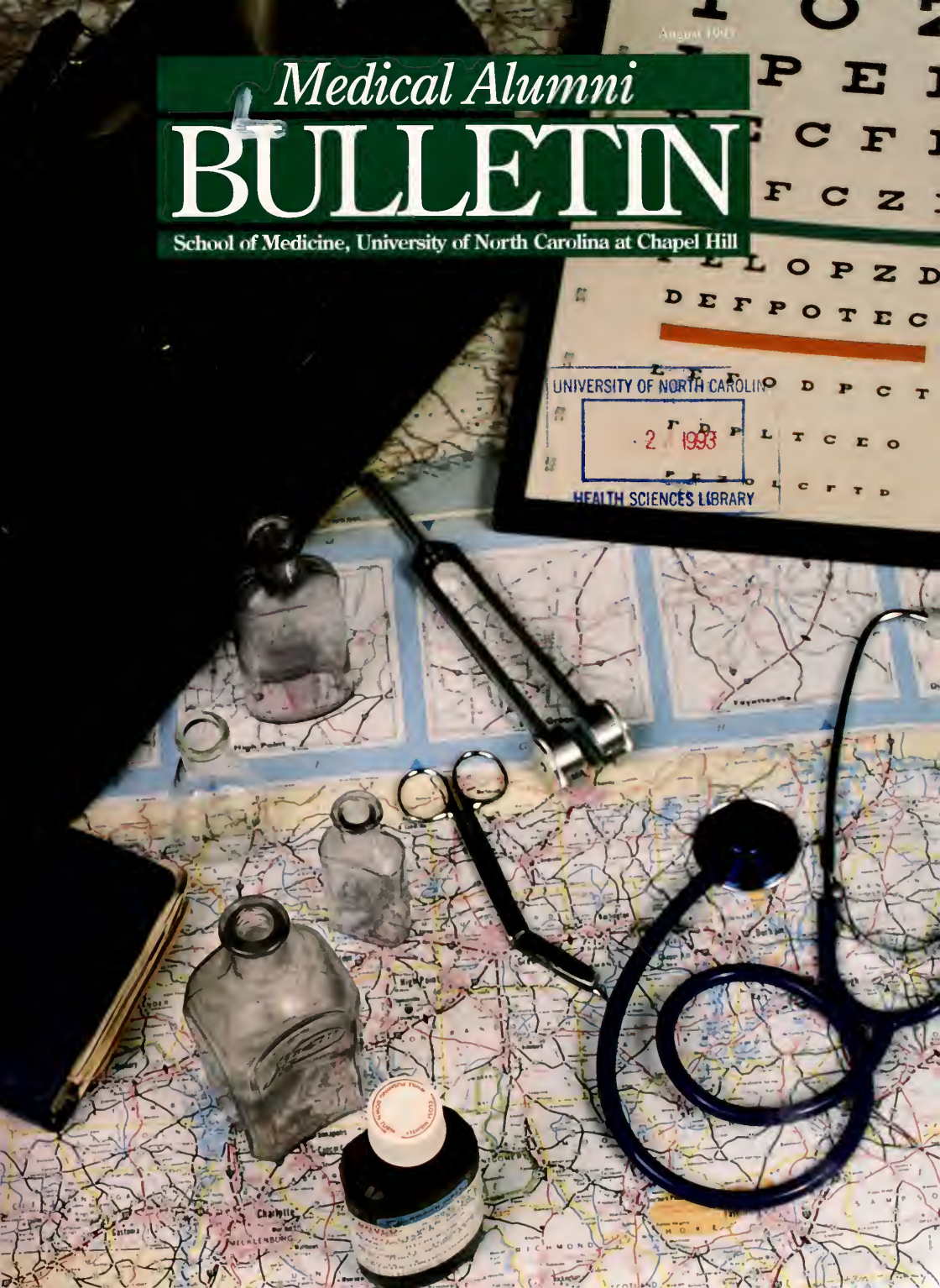
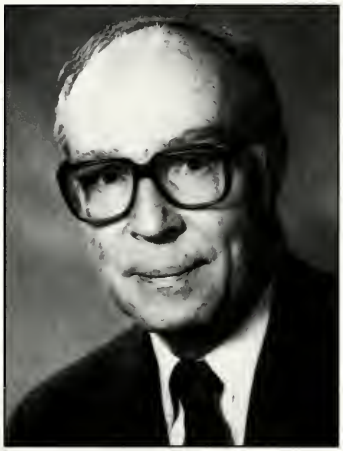
# Medical Alumni BULLETIN

School of Medicine, University of North Carolina at Chapel Hill



# Dean's Page



The intensity of discussion of the many issues subsumed under the title "Health Care Reform" is so intense these days that this Dean's Page can hardly be devoted to any other subject. If the efforts of Hillary Rodham Clinton and the Administrative Task Force on Health Care Reform have done nothing else to date, they have at least brought to wide-spread public attention the fact that there is not to be any single, simple, or global solution to health care that does not entail the interactions of a number of principles, practices and interests in ways that sometimes produce unintended and perverse consequences.

As I write this column (June 1993), it appears that it is very unlikely that Congress will act on or possibly even address health care reform in this session. Thus, reform at the federal level may be at least a full year away with implementation following by several years. Several states — Florida, Washington, and Maryland, for example have recently adopted comprehensive programs of health care reform, but it appears at this time that North Carolina will not embark on comprehensive reform during the current legislative biennium.

If these expectations prove to be correct, we must anticipate little change in the actual operation of the health care system for at least three years.

If health care costs continue to rise at a rate that is greater than the rise in other costs, I expect great pressure to impose a freeze on health care expenditures by all payors.

Having lived through the freeze of 1974, I doubt the ability to impose a freeze on expenditures for health care that will not have adverse effects of many kinds, and I doubt that a freeze will be effective in containing costs in the long run. This scenario is simply another reason that the interests of our patients and our profession will be best served by a reasoned and reasonable reform of the health care system.

The principles of such reform are easily stated and widely accepted. They include: Universal access to high quality, comprehensive health care at a cost that is acceptable to the ultimate payors, the people. The arrangements must be simple and understandable for the patients and the public and simple and operational for health care professionals and institutions. Realization of these simple principles is extraordinarily difficult both because of the complexities and heterogeneities that are involved and because there is not universal agreement on values to be honored.

As these issues swirl through our cultural decisional processes, there are many perspectives that need to be considered.

First, implicitly or explicitly we will be making value judgments as we move health care rationing into the sunlight. I believe that the need to choose what health care will be available is one of the issues at the very heart of our inability to come to closure on health care reform. I also believe that it will be healthy for everyone for these issues to be openly recognized and addressed.

It seems evident to me that there must be a substantial increase in the number of generalists/primary care physicians. I believe that tort reform is essential to the operation of an efficient and effective health care reform system and that simplification of the management of the system is also essential to efficient operation. Long-term effectiveness requires integration of education and research into the reformed health care system and both of these need much more attention than they have been given by any of the reformers to date. The saga continues to unfold.

Stuart Bondurant

*Stuart Bondurant, Dean*

# *Medical Alumni* BULLETIN

**School of Medicine, University of North Carolina at Chapel Hill**



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## Contents

### Cover Story


Primary Care: A Special Opportunity and Challenge for Leadership ..... 2
*(Cover Photo by Jack Sink, the Burlington Times News)*


### Features


Charlie Baker, Mountain Doctor ..... 10

Examining the 'Arts' of Healing at UNC medical center ..... 13

Distinguished Medical Scholars Program Stimulates Independent Thought ..... 15

Probing the Mystery of Sleep ..... 17


### Departments


Dean's Page ..... Inside Front Cover

Development Notes ..... 20

News Briefs ..... 21

Faculty Notes ..... 26

Class Notes ..... 28

President's Letter ..... Inside Back Cover

Alumni/CME Calendar ..... Back Cover

# Primary Care: A Special Opportunity and Challenge for Leadership

## *North Carolina Situation Mirrors National Problem*

## *"Doc" Takes Care of Hometown*

## *Institute Responds to Primary Care Need*

In this section, editors of the *Bulletin* seek to present perspectives from on-campus and across the state on some of the dimensions, challenges and opportunities associated with the shortage of primary care physicians in North Carolina and in the nation.

Some background on the UNC School of Medicine's efforts to address the primary care problem may help establish a context for the articles that follow.

Statistics indicate:

In North Carolina, 19 counties have no primary care physicians or no obstetrical care and 18 counties have no hospital. Nationally, more than 100 U.S. counties have no physician and more than 200 rural hospitals have closed in the past five years, many due to a lack of physicians.

Establishment of the Institute of the Generalist Physician in the UNC School of Medicine (page 9) was a major event in the institution' s response to the need, as was the faculty's affirmation of an institutional commitment to having 50 percent of the school's graduates enter primary care. Predating these accomplishments, however, was a virtual cavalcade of events, only a few of which attracted much attention outside the medical school.

For example, primary care was a major emphasis of a 1987 School of Medicine "white paper" on education in the ambulatory care setting that led, in 1988, to appointment of a task force for improving education in the ambulatory care setting. In 1989, the Dean called for specific plans for changes in the clinical curriculum to increase the exposure of UNC medical students to ambulatory care settings and primary care.

Subsequently, in 1990, the faculty approved extensive changes in the clinical curriculum, and by 1991 all 165 third-year students were participating in a required four-week family medicine clerkship at 56 community practice sites across the state. Other curricular changes included an extended pediatric clerkship, restructuring of the third-year internal medicine clerkship and the establishment, in 1992, of a required ambulatory care rotation from which students can select among 40 community-based sites in North Carolina.

Also in 1992, with the assistance of the School of Public Health, students were offered a community health project elective that provides a flexible experience students may participate in throughout their medical school experience.

While it is still early to tell the full impact of these initiatives on residency selection by graduates, primary care offerings in the curriculum are achieving high scores in evaluations by students, and there is evidence of a growing interest among young physicians and physicians-in-training in pursuing generalist careers.

-JWS

# North Carolina Situation Mirrors National Problem

**By Leslie M. Purcell**

In the quiet, peaceful northeastern North Carolina town of Ahoskie, things aren't very serene for Charles Sawyer, M.D., and his partners at Ahoskie Family Physicians. Each day at 6:50 a.m., they start rounds at the local hospital where they have between 15 and 25 patients at any given time. After rounds, at about 8 a.m., they go to their practice on Academy Street and their branch office in Murfreesboro where they see 100 to 125 patients a day and work 60 to 75 hours a week. If Sawyer is on call, he doesn't get home until about 9 or 10 p.m., on a good night, but knows he will probably get several calls during the night.

For five years, Sawyer and his partners have been trying to recruit another partner to help allay their hectic lifestyle, to give them a chance to take a breather, to help with the patient load. And for five years they have been frustrated that no one has answered their call for help. In fact, within the next month the practice will be losing one of its five physicians who has worked there for 19 years. He's leaving because of burnout and frustration with the demands of primary care to go where he can work fewer hours for more money.

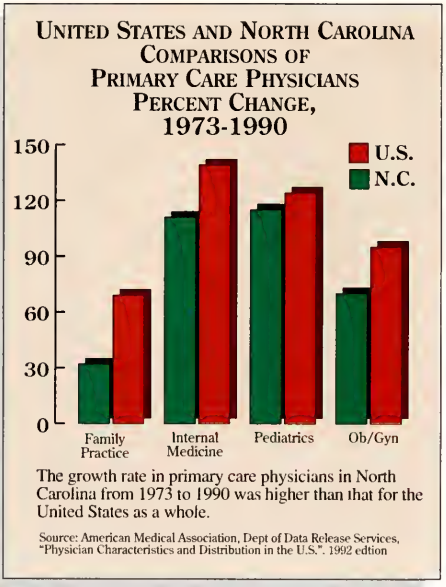
"This is not a problem unique to our part of the state," said Sawyer, a 1963 graduate of the University of North Carolina at Chapel Hill School of Medicine. "It's happening in all of rural America. We serve a patient population of 12,000 to 15,000 in rural northeastern North Carolina. We have a good hospital with all the medical sophistication you need, but that's not enough to enhance recruitment of the type people we want in practice with us. The major reason physicians don't get involved in this type practice is simple: primary care doesn't have the economic incentives that invasive medicine and surgery have, and a lot of people don't feel comfortable living in rural and underserved areas."

"Almost everything out there is conspiring to make it economically unfeasible for a young doctor to practice in a rural area," said Harvey Estes, M.D., director of the North Carolina Medical Society's Community Practitioner Program. "A lot of people would go to this very pleasant North Carolina community if we could make it economically viable to go there. But right now there's no way.

"The average doctor comes out of training with $60,000 to $70,000 in educational debt," Estes said. "They can go to a city and make $100,000, have time with their families and have the cultural benefits of a larger community. Or they can go to a small community and make about $60,000, working longer hours and having very little time for their families."

But why are they making less if they're working harder?

"If you're in Durham, 10 percent of your patients are on Medicare," Estes said. "But take a doctor in a small community who started his practice years ago and has followed his patients over the years. Now half of his patients are on Medicare. It costs a doctor $20 on average to see a patient in his office, and Medicare pays $18. The doctor is $2 short and has a 10 percent loss on




The growth rate in primary care physicians in North Carolina from 1973 to 1990 was higher than that for the United States as a whole.

Source: American Medical Association, Dept of Data Release Services, "Physician Characteristics and Distribution in the U.S.", 1992 edition

> "The average doctor comes out of training with $60,000 to $70,000 in educational debt."
>
> Harvey Estes, M.D.

every Medicare patient he sees."

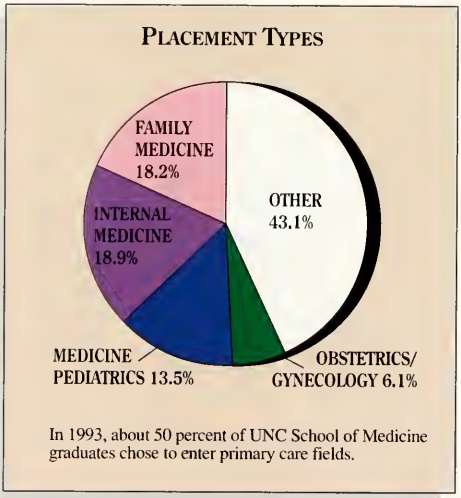
For Sawyer's practice, which serves mostly geriatric patients, the numbers are even worse. Between 60 and 65 percent of his patients are Medicare patients. "And Medicare only pays 65 percent of our charges."

"These doctors in rural communities are making $10,000 to $20,000 less now than they were 10 years ago even though they're seeing the same number or more patients. Medicare doesn't pay its way," Estes said.

Underpayment by Medicare and Medicaid is not the only issue. There is also a disproportionate reimbursement for procedural medicine.

Edward E. Lawson, M.D., acting chair of the Department of Pediatrics at the University of North Carolina at Chapel Hill School of Medicine, offers an example: "A child supported by Medicaid is born prematurely and goes to the neonatal intensive care unit. On the second or third day of life, the baby may require surgery. The pediatrician can collect $58 a day from Medicaid for caring for the baby, and the surgeon can collect well over $1,000 for a procedure that takes less than one hour. Somehow years ago, we got locked into paying more for procedural specialties."

Studies by Rand Corporation, UCLA and others have shown that when treating patients of the same ages and with the same medical conditions, specialists order tests, prescribe drugs and hospitalize their patients more often than family physicians and general internists. Add to this the fact that specialists are paid more for doing some of the same procedures and you find that patients are often paying higher than necessary prices for more than necessary service.




In 1993, about 50 percent of UNC School of Medicine graduates chose to enter primary care fields.

"Even though the reward for procedural skills is much higher than for cognitive skills, doctors go into primary care because they are attracted to being a personal physician," said M. Andrew Greganti, M.D., professor of medicine at UNC-Chapel Hill. "They like to develop a close relationship with their patients and to follow the history and progression of disease over time. The primary care role gives a lot of closeness to patients, and the physicians learn a lot about life. But the market value of their services and the quality of life can overrule these issues."

Unfortunately, there is another significant deterrent to practicing general medicine besides money and lifestyle — prestige.

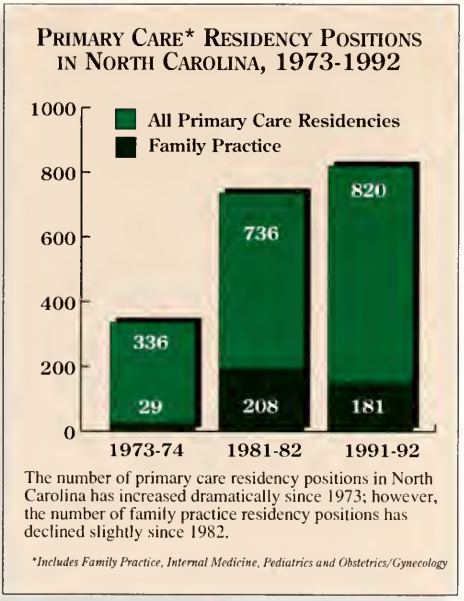
"Medical students grow up in a system where they haven't had good role models in primary care," Lawson said. "Primary care is perceived as less intellectual, less scientific and less rewarding than specialty medicine. If you don't have the last word on everything you do, you're somehow inferior. If you have to take care of the whole range of problems, then others never consider you a prestigious 'expert' in any one area."

Because so much of medical students' and residents' training is done in major medical centers where there are many specialists and few primary care physicians, "specialists become seen as optimal role models who command the most respect and prestige by limiting their clinical activities to a narrow field of medical knowledge," Greganti said.

"Students respond to role models," said William D. Mattern, M.D., professor of medicine and associate dean of academic affairs. "They are usually looking for physicians they can picture themselves being like. Sometimes contact with a single individual like that will influence their career choice. That's why early exposure is so important. It conveys the message that those disciplines are important enough to spend time with them. So it's important for medical students to see primary care physicians who are respected faculty."

"It's not surprising that medical students go into cardiology and gastroenterology because that's what they've seen," said Michael C. Sharp, M.D., associate professor of pediatrics and course director for the School of Medicine's Ambulatory Care Selective.

But the fact is that in traditional medical




teaching settings, medical students and residents "are taught by academic faculty who have learned that the clinical practice of medicine is not the key to academic success," Greganti said. "In fact, clinical practice and teaching activities limit the time to do research and to compete for grants, the activities that reap the highest rewards in academic medicine."

Studies have shown that 75 percent of first-year medical students who say they want to practice primary care change their minds by graduation time, according to a November 1992 report in Business Week magazine. This shift in interest is attributed largely to derisive and negative attitudes toward generalist physicians and to a lack of exposure to primary care practice.

"We need to give positive reinforcement of interests and attitudes toward primary care rather than beating it out of them when they come here," said Eugene S. Mayer, M.D., associate dean and director of the Area Health Education Centers Program.

"And we need to change the reward system so that people are more likely to select what society needs," said James G. Jones, M.D., chair of the North Carolina Medical Society's Task Force on Primary Care.

This includes financial rewards and other accolades for faculty with outstanding clinical skills and monetary rewards for those who are practicing primary care in underserved communities.

In addition to the monetary and prestige issues, medical students need to have the opportunity to experience the challenges of primary care on the front lines of medicine as part of their curriculum. "If you include the right experience in their medical education, they'll go into primary care," Sharp said.

"As a public school created and maintained to help address the health manpower needs of the state, the UNC School of Medicine has a special responsibility to do all that we can to assure specialty distribution appropriate to the health care needs of the state," said Stuart Bondurant, M.D., dean of the School of Medicine. "We are taking many steps to fulfill our responsibility to do all that we can to provide a reasonable portion of generalist physicians among our graduates."

Among these steps is a shift in academic curriculum and focus.

During the first year of medical school, students who express an interest in primary care are paired with a primary care role model and mentor who follows them throughout their four years in medical school. "These faculty members help students learn primary care and reinforce the attitude that primary care is exciting, legitimate and important to the profession and to society," Mayer said.

In addition, during all four years of medical school there is now an elective Community Health Project that gives students the opportunity to look at health care systems from a community perspective and to learn about the personal, social, cultural, economic and political forces that influence individuals' and the community's health and health resources. Other efforts to increase medical student interest in primary care practice are the Ambulatory Care Selective and the Family Medicine Clerkship, which place medical students in private practices and federally-supported community health centers for clinical experience.

Through these programs, "we've been reminded that students learn best when working in the 'real world,'" said Donald Kollisch, M.D., assistant professor of family medicine, co-director of the Ambulatory Care Selective course and director of the Family Medicine Clerkship. "We have found that our preceptors, community-based physicians who volunteer to teach, are enthusiastic and skilled teachers. Students come back to us from working

with such preceptors with sharpened skills and an 'aha' sense of what being a doctor is all about. They just can't get that perspective here in the tertiary care center."

But getting medical school graduates to choose primary care residencies is only part of the problem, according to Mattern. "The real concern nationwide is how many actually become primary care physicians, because, in some of the primary care disciplines, it's possible to specialize after residency training. A survey of our 1987 graduates indicated that only 20 percent of them (excluding obstetrics/gynecology) are actually practicing primary care."

Many of these physicians go to rural areas to practice primary medicine but leave after a few years because of burnout or economic pressures.

The North Carolina Medical Society's Community Practitioner Program, which is funded by a Kate B. Reynolds Foundation grant, is one program created to help rural and small-town physicians keep their doors open and their patient loads bearable.

"Our purpose is to get doctors and other health care workers in underserved areas and to keep them there," Estes said. Some of the services the program offers are: loan forgiveness or loan repayment for recent graduates whose school debts prohibit them from practicing in a low-paying, underserved area; income supplements for physicians who locate their practices in needy communities; assistance with purchasing major equipment for physician offices such as an X-ray processor or computer; hiring consultants to analyze a medical practice and to recommend ways to improve office management; and assistance in training office staff.

Since the Community Practitioner Program was established three years ago, it has helped about 45 physicians.

Another creative initiative to address the shortage of generalists in underserved areas is the locum tenens program funded by the Kate B. Reynolds Foundation and managed by East Carolina University and the Mountain Area Health Education Center. This program funds a faculty person in family medicine at ECU and the MAHEC in exchange for 50 weeks of coverage for isolated rural physicians. The faculty member covers a rural physician's practice for a week at no direct cost to the practitioner except for living expenses. This enables the generalist physician to keep his or her office open while giving the physician a break from the demanding practice.

"The program has worked like a charm," Estes said. "The doctors in the rural areas thought it decompressed the situation by giving them time away. And the faculty come back with a greater understanding of what it's like to practice in these areas. Sometimes they take medical students with them to show them what it's all about."

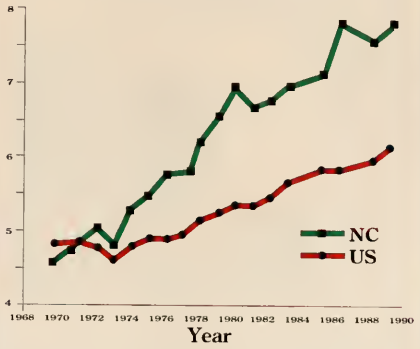
At present the program is not statewide.

There is a growing awareness among educators and students of the need for more generalist physicians and a greater emphasis on primary care in the educational curriculum. There's an increasing interest among communities in making themselves more attractive to physicians and a realization among those who foot the bill that primary care must be the foundation of the American health care system to make services accessible and affordable and to improve the overall health of our nation.

All of this attention to the primary care crisis is a step in the right direction. But, "the problem is that the educational pipeline is eight to 10 years long," Mattern said. "It could get significantly worse before it gets better. That's why it's so important to make the steps now." □

## Median M/100,000 Population

Comparison of 75 Non-Metropolitan Counties of North Carolina and 2342 Non-Metropolitan Counties of the United States 1970-1989
(Median Physician Per 100,000 Population)




North Carolina's 75 non-metropolitan counties have shown continued improvement in their median physician-to-population ratios during the 1980s, whereas similar counties in the rest of the United States have not done as well.

Note: 1984 and 1987 data not available
Source: US Bureau of Health Professions Area Resource File

# "Doc" Takes Care of Hometown

**By John Cochran**

***Editor's Note**: Tommy Coleman left the Rockingham County town of Stoneville 20 years ago as a young college student. In February, he returned with a medical degree to become the only doctor in his hometown. The following is reprinted from the February 28, 1993,* Greensboro News & Record.

Tommy Coleman was 10, growing up on his family's Rockingham County tobacco farm, when he first dreamed of studying medicine.

As a high school freshman, he seemed so sure of his future, so sure that he would be a doctor someday, that his friends at Stoneville High began calling him "Doc."

The nickname stuck.

Early last week, 20 years after leaving Stoneville as a young college student, "Doc" Coleman hung his shingle outside his new office in the heart of his little hometown. It reads: "Comprehensive Community Health Care, Thomas R. Coleman, M.S., M.D."

Coleman, 38, calls it serendipity. Stoneville, which lost its only doctor about 18 months ago, was looking for a replacement just as Coleman was finishing his residency at Moses Cone Memorial Hospital in Greensboro.

He called the town himself last fall. He had spotted the locked and empty doctor's office downtown while visiting a boyhood friend. Folks in Stoneville call it a little miracle.

Like many other small towns in North Carolina, Stoneville had worked hard to recruit a doctor but found no one interested in a country practice. A few physicians came to town, looked it over, then left.

Photo by John Cochran

*In February, Tommy Coleman, M.D., returned to his hometown of Stoneville to open his practice.*

"We were just about running into brick walls every way we turned," said David Matthews, the town pharmacist and owner of Stoneville Drug.

Then along came Doc.

Last month, Coleman began moving into the two-story brick building on Henry Street that has been the town doctor's office since 1946. It's next door to Stoneville Drug, the pharmacy with the old-time soda fountain where a teenage Coleman used to eat nut sundaes after school.

Early last week, Coleman announced he would begin seeing patients Monday.

Stoneville residents said their town seemed complete again.

"It means a great deal to Stoneville," Matthews said. "A town needs a school and a drug store and a grocery store. And it needs a doctor. That's one of the things a small town needs to survive."

Stoneville was remarkably lucky, said Joe Robbins, manager of medical placement at the North Carolina Office of Rural Health. In a time when the state's rural areas are short more than 400 physicians, few doctors are willing to take on what Coleman has taken on — a solo practice in a small town, Robbins said.

Fewer still would do it in their hometown, he said. Many say the risk of burnout is too high.

"I was at a seminar this week where doctors said, 'I would never go to my hometown because I could never say no to someone I grew up with,'" Robbins said.

"You have to learn how to say no. You have to learn how to go to the drugstore and not end up doing a consultation in the parking lot."

With that in mind, Coleman is opening his practice as an out-patient clinic only. He will not be on call 24 hours a day, seven days a week.

But in Stoneville, Coleman said he sees a chance to practice preventative health care, not last-chance medicine. As a resident at

Cone Hospital, he often saw patients only in the last stages of disease.

The risk of burnout was greater there, Coleman said.

In Stoneville, he sees a chance to get to know his patients — to practice with the empathy of a country doctor.

"I don't want to see patients as diseases," Coleman said. "I don't want to treat Mrs. Jones the diabetic or Mrs. Jones the hypertensive. I want to treat Mrs. Jones the person, who has a life outside this doctor's office."

Coleman's ties to Stoneville go back two generations. His grandparents, Ross and Minnie Snead, farmed land just east of town off NC-770.

His father, Vance, worked in town as manager of the Baxter, Kelly and Faust yarn plant. His mother, Jane, worked in the office of Stoneville Furniture Co.

But they raised their son in the country on the Snead tobacco farm. Coleman worked there for a while after high school graduation in 1972 and then left for college.

After earning an undergraduate degree, he went on to study biostatistics at UNC-Chapel Hill. He earned his master's degree there and then moved to Atlanta to work for a time as state statistician at the Georgia Department of Human Resources.

In 1987, he returned to North Carolina to attend medical school in Chapel Hill. He graduated in 1991.

He and his wife, Nancy Kiernan, moved from Greensboro to a house in the country south of Stoneville this month, and Coleman began putting the finishing touches on his Stoneville office — new carpeting and chairs in the waiting room, bright wallpaper in the examining rooms, fresh paint all around.

His waiting room looks out on the old brick facades of main street Stoneville. Across the street is the town's barber shop. A few doors down is Gann's Farmers Hardware and Moore's Market.

Longtime Stoneville residents say 18 months is the longest the town has ever gone without a doctor, and there was a certain peace of mind lost when the office on Henry Street sat vacant. They say it's good to have a physician so close again, so accessible.

In Stoneville, Tommy Coleman sees a chance to get to know his patients — to practice with the empathy of a country doctor.

James Fulp, M.D., who came to town in 1937, was the first to open a practice in the building in 1946. He was replaced in 1972 by John Stone, M.D., who folks say opened his practice with nothing but a prescription pad and a cigar box to hold the money.

Stone died in 1982, and two other physicians — Tate Rogers, M.D., and Philip Bickers, M.D., — have occupied the building since. Bickers left in August 1991.

Coleman found the place dark and musty. In back were 40-year old examining tables and a dusty, old microscope.

But by last Tuesday, the office was alive again. The new examining tables were covered with fresh paper and ready for patients. The appointment book was filling up.

Coleman said he enjoyed his time in Atlanta, Greensboro, and Chapel Hill. But he loves the country most of all. He's happy to be back.

And there's something spiritually pleasing about opening his first practice in the same office where his grandparents once sat and waited for the doctor.

He's back where both he and his dreams of medicine began.

"It's almost like I've come full circle," Coleman said. "This is where I originally thought I'd be." □

(Reprinted with permission of the *Greensboro News & Record.*)

# Institute Responds To Primary Care Need

By Veronica A. Gontram

The UNC School of Medicine's Institute of the Generalist Physician is less than a year old, but its agenda is crystal clear and the Institute's director is pleased with its progress."The Institute of the Generalist Physician is a mechanism by which this medical school is responding to the shortage of generalist physicians in this state," said Peter Curtis, M.D., professor of family medicine and director of the Institute.

"Our primary goal is to have 50 percent of our graduates going into generalist practice. We also are working to increase the number of residents in primary care specialties who become generalist physicians and enhance the retention of generalist physicians who establish practice in North Carolina, particularly in underserved communities."

Several objectives have been established to help the Institute meet these goals including recruiting students who are interested in generalist primary care, supporting a medical curriculum with increased generalist exposure, fostering more positive attitudes toward generalist medical practice and increasing interaction with other professionals who have a major role in primary care, such as nurses and public health officials.

According to Curtis, the Institute, funded by the UNC School of Medicine and the North Carolina Area Health Education Centers Program (AHEC), has already made progress. The Kate B. Reynolds Charitable Trust just awarded the Institute a three-year grant, which will be used for a pilot project aimed at developing generalist training sites for medical students throughout the state. With the help of a new Office of Community Medical Education at the Coastal and Charlotte AHEC sites, pilot project leaders hope to develop five or six new teaching sites in local practices in the Wilmington and Charlotte areas. Curtis said that eventually they would like to see additional training sites in each of the nine AHEC regions.

The Institute is also working with the Office of Rural Health on an innovative service linkage project, Curtis said. The project, developed by the Office of Rural Health, places eight medical students from UNC and three students from East Carolina University in rural practices during summer months.

"What we're developing is a summer experience for these students — one that they will potentially return to every year that they're in medical school," Curtis said.

He added that links with the community are vital to the success of the Institute. As such, the Institute is working with representatives from AHEC, community health centers, private practices, state agencies, community agencies and consumer advocacy groups to formulate strategies for developing partnerships between the medical school and outside groups.

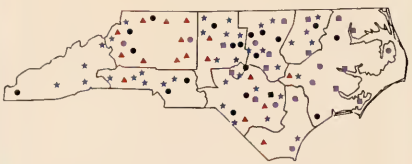
"Curriculum changes, having students spend more time in community practices, health departments and migrant health centers — these are all important in getting students turned on by the kind of care they can provide there," Curtis said.

"But to keep people in generalist practice, we also need to make them feel more rewarded and more respected by the community. We need to make practitioners feel less isolated by having students work with them and by having academic institutions stay in touch with them. Finally, we need to offer them more income and teaching rewards.

"We hope that the strategies we formulate will help to address this growing crisis of care access and high health care costs and change the culture of what happens at this medical school."

**LOCATIONS OF AHEC ROTATIONS FOR MEDICAL STUDENTS (1991-1992)**

★ UNC-CH
● DUKE
■ ECU
▲ BOWMAN GRAY



Medical student education takes place on a regular basis in more than half of North Carolina's 100 counties. Through rotations organized by the AHEC Program, students are learning in community hospitals, health agencies and physicians' offices.

Source: North Carolina Area Health Centers Program, November 1992

# 'We'll Send Our Kids To College On These Trees'

**by Wes Lefler**

Charlie and Ann Baker believe there is much more to life than affluence and urban living.

Theirs is a life of peaceful isolation and rural neighborliness.

Nestled deep in Avery County's beautiful snow country, their 130-acre Christmas tree farm is just two miles from Crossnore, NC, where Charlie, M.D. '73, has a pediatrics and family medicine practice.

"Most of our neighbors are Christmas tree farmers, and most of their children I have delivered," Charlie smiles fondly.

A native of Charlotte and graduate of Davidson College, Charlie enjoys being a small-town doctor, and it shows. He thrives on the personal relationships he's developed during his 14 years in Crossnore.

His closest kinships are with the 1,000 babies he's delivered and their families.

"Medicine here in Crossnore has a very happy side," Charlie says. "We see as much sadness as happiness, but because of the new babies, ours is a very happy practice.

"It's so much easier to take care of babies when you've known their moms for nine months during the obstetrical experience and gotten to know their whole family in your practice. Understanding family dynamics helps so much in treating the individuals of a family," he says.

Certified in both pediatrics and family medicine, Charlie Baker practices in Crossnore's 35-bed Sloop Memorial Hospital.

Sloop dates back to 1929 and the nurturing of medical pioneers Eustace H. Sloop, M.D., and Mary Martin Sloop, M.D., who came to Crossnore in 1911 on horseback. After 60 years of relentless fund raising and community involvement, Sloop Memorial Hospital gradually has been transformed into a state-of-the-art medical complex staffed by specialists in pediatrics, obstetrics, general surgery, family medicine, radiology, pathology and urology.

The dominant building in Crossnore and the primary employer, Sloop Memorial, is a mile off of U.S. Highway 221 between Linville Falls and Grandfather Mountain. Literally off the beaten path, Crossnore is uncluttered by stores, restaurants and tourist shops. Around the hospital are the town hall, post office, volunteer fire department and a few churches.

"We selected Crossnore because we both liked the mountains between Blowing Rock and Mount Mitchell," Charlie says. "While we were looking, we found that Avery County needed a doctor. We've been here long enough to build lifetime relationships and we're happy."

Ann's work also gives her a close kinship with the community. She is a Christmas tree farmer. Charlie says he is unpaid labor. With his chain saw, John Deere tractor and four-wheel-drive Chevy pickup, he does much of the heavy work. Planning, planting, growing and marketing are Ann's specialties.

Ann's tree farm is a good income producer," Charlie says. "We'll send our kids to college on these trees."

A graduate of Carnegie-Mellon University and a native of Salisbury, Ann is an artist and sculptor. She also teaches art at nearby Penland School of Craft.

As a farmer, Ann has her hands full with her livestock — two horses, three dogs, four cats, two rabbits, one ferret, and assortment of ducks, a lake of rainbow trout and Miguel, their llama.

Ann says coming to Crossnore was a good decision. "It's a great place to raise our three children. Daniel is 17, Alice, 11, and Kate, 5. Avery County has good schools, and the children enjoy their environment."

Their home and environs have the homey touch of easy mountain living. Rustic and spacious, their renovated farm house at the end of a state-maintained dirt road is a perfect jumping-off place for their hiking, running and biking forays into the secluded mountains.

Fed by a rocky spring on the mountainside, a backyard lake forms the centerpiece for their tree-covered garden that is comfortably cool even on the warmest days. They have no air conditioning. At an elevation of 3,800 feet, they sleep under blankets right through the summer, Ann says.

"In the winter there's lots of snow," Charlie says with a chuckle. "Since we've been here, there have been two times when I couldn't get out with a four-wheel-drive vehicle. The last one was the big March 1993 blizzard. I had to get to the hospital to deliver a baby that morning. The only way was to cross-country ski the two miles to town. I made it in time, and the baby did just fine."

"Sometimes," Charlie says, "the weather up here will play tricks on you."

One night last winter, about midnight, Charlie got an urgent call to come to the hospital to deliver a baby. Worried about ice on the tortuous roads, he checked the thermometer. It was in the 30s. On the way he tested his brakes several times. No ice — not until he started down a long hill.

"It was solid ice and I couldn't stop. I slid all the way to the bottom, crashed through some guard posts and plunged into a creek!"

Fortunately, he escaped with superficial injuries, but his van was totalled. The baby came without him. The baby's father, Charlie points out, was a physician with all the medical skills necessary to deliver a baby.

On a normal day Charlie is up at 6:30 a.m. and in the hospital making rounds by 7:15. By 8:15 he's seeing patients in his office.

"It's pretty much nonstop until 12:30, when I take a break to grab a bite and run. Without my physical exercise, I'd be a basket case. If I don't run I cycle. For me, exercise is a great stress reliever," Charlie says.

Again, he's with patients and medical students from 1:30 p.m. until 5:30 or 6 p.m. In a normal day he will see 35 patients. On a heavy day in the past, he sometimes saw as many as 50 patients, but physician extenders have alleviated heavy patient loads, Charlie says.

A full-time preceptor for third-year UNC medical students, Charlie has consistently received the highest evaluation marks.

"My work as physician advisor for North Carolina Outward Bound at Tablerock has been very stimulating to me," Charlie says. "It's an outdoor experiential school where we teach rock climbing, first aid, wilderness education, emergency medical skills and personal growth. It is a wonderful experience for people of all ages."

As physician advisor to the local child abuse team, he says severe child abuse is rare, but occasionally they see evidence of excessive force and punishment as well as signs of sexual abuse in the home of both boys and girls. These are referred to the appropriate medical, legal or family units for corrective action.

In his medical practice he sees lots of heart disease and stress.

"We are handling those well. We are telling people there is nothing wrong with talking about their stress, and they are talking. Diets are improving. More and more people are tossing out their cigarettes," Charlie says.

He regrets that he and his associates sometimes cannot help the young mountain man. "He's tough. He doesn't need a doctor. He never gets sick. When he sees a doctor, it's an emergency."

Ann thinks the seasonal rites of Christmas tree farming are interesting.

Christmas tree season is a big production season in Avery County, she says. "It's the time when your income for the year is on the line. If, for whatever reason, you can't compete, your income for the year is gone. Borrowed money must be paid back. Stress runs high at this time," Ann says. So what do the men and boys do? They go off on big hunting trips as a psychological preparation for the tree season. Anywhere and everywhere they go to hunt. And when they come back they are ready to go for it.

Charlie relaxes in the summer shade of his backyard and reflects on life. After medical school Charlie went on to a residency at the University of Pittsburgh in 1979. He served for two years with the Indian Health Services in Pine Ridge, SD, and one year in the inner city at Pittsburgh. Those were the tough years.

Now, he has his life where he wants it to be at this stage of his career. His practice is flourishing, and he is happy with his leisure time. If you look around the house and barn, you'll see signs of his happiness . . . running shoes, bikes, cross-country skis and a canoe. □

*Charlie Baker feeds rainbow trout in his backyard pond.*

# The Arts: Tonic for the Soul

**By Beverly B. Thompson**

From Bach to Ellington, from Monet to North Carolina artist Nancy Tuttle May — the arts have found a home in the University of North Carolina's medical center.

The calming chords of a baby grand piano put patients at ease in the new UNC Ambulatory Care Center. Bright watercolors by two North Carolina artists offer patients a diversion while they wait for imaging studies in the Scatliff Magnetic Resonance Imaging Center on the ground floor of UNC Hospitals. A noon performance of classical music gives busy students and faculty an escape from the rigors of education at Berryhill Hall.

The UNC medical center is using the arts to help relax and soothe patients as well as students and staff, said Mary Beck, director of planning at UNC Hospitals, who also co-chairs UNC medical center's Arts and Humanities Program. "During the past two decades, there has been a surge of innovative and divergent efforts to incorporate the arts into health care settings across the country."

The program, jointly administered by UNC Hospitals' Office of Planning and Program Development and the UNC School of Medicine's Office of Alumni Affairs, is part of an initiative to enrich the personal, environmental, intellectual and humanitarian ambiance in the medical center.

"I think we have come to realize that while technology and knowledge are essential to health care, we need to create a humanistic environment for patients and medical staff. Medical centers are places where people 'live' and work, sometimes 24 hours a day. It is important to have an environment where we show caring and concern, not just for patients and visitors, but for the entire staff and students as well," she said.

Photo by Dan Crawford

*Robert Berger, M.D., associate professor of medicine, entertains at the UNC Ambulatory Care Center.*

Started by Stuart Bondurant, M.D., dean of the UNC School of Medicine, and William E. Easterling Jr., M.D., associate dean for continuing medical education and alumni affairs, the program's goal is to promote and support cultural activities for the UNC medical community. Their early discussions in 1989 focused on a desire to make arts and humanities "more visible and accessible in the daily lives of medical students, faculty, and the entire medical community," Easterling said, "with the goal being to foster, among other qualities, a heightened sense of caring for others."

The first step was to survey faculty to "find out where their interests lay," said Easterling, who also serves as a co-chair of the program. "Many of our faculty members responded, expressing interests in six to eight different areas. Numerous medical students also responded."

From that group, a planning and organizational committee for the Program on the Arts and Humanities was formed, consisting of 12 faculty members and 11 medical students. Initial interests included visual arts, music and dance, literature, theater and film, and ethics and philosophy of medicine, all now components of the program.

The UNC program is modeled after a similar one at the Johns Hopkins medical institutions, Easterling said.

"Like the Hopkins program, ours exists to foster our own artistic efforts through the visual arts component of the Arts and Humanities Program, and has as its goal to assist in the healing process and encourage

Photo by Jay Mangum

*Richard Luby, Ph.D., associate professor of music, participates in a noon concert at Berryhill Hall.*

the understanding of the whole person by providing a comforting, soothing and restful environment for patients, visitors, faculty, staff and students of the medical center.

"However, while the Hopkins program drew on a variety of talents outside of the university — including people like the late John Houseman and actress Geraldine Fitzgerald — we discovered that we don't need to create everything, because we're right here on campus, and we've got all these wonderful resources. All we have to do is tap into them and make sure that everyone knows that they're available."

One example of a cross-campus effort was providing music at the UNC Ambulatory Care Center, a project supported by the committee and headed by Robert Berger, M.D., associate professor of medicine and a former concert pianist. He helped push for the music project after visiting ambulatory care centers around the country and observing many with pianos to provide live music for patients. He has worked with the university's music department faculty to help find talent for the lunchtime program.

"We've had a great response," said Berger, who sometimes tickles the ivories on Mondays at noon. "Sometimes, there's a crowd. It's near the pediatrics unit, and sometimes kids come up and watch. The staff enjoy it, too."

Michael Zenge, Bowman and Gordon Gray Professor of Music and associate chair for applied studies, says he is pleased with the project.

"I see it as an opportunity for our students to get in extra performance experience and a chance to show what the Department of Music has to offer."

Another goal of the program is to promote the understanding of ethics and the philosophy of medicine through informal seminars, symposia, film series and the performing arts.

One such activity endorsed by the Arts and Humanities Program is the Staged Readings Program which, according to Nancy M.P. King, J.D., encourages audience response and participation. King is assistant professor of social medicine and former chair of the committee that laid the ground work for the Arts and Humanities Program.

"Discussion, not just among health professionals but including the outside community, is an integral part of all this. That it is possible to talk about our experiences in the arts and humanities further enriches it," King said.

The five-year-old Staged Readings Program, in which physicians, medical students and other members of the medical community perform staged readings about medicine, society and the patient-physician relationship, is always followed by discussion. Partially funded though the UNC School of Medicine's Dean's Office, the readings are performed for community audiences throughout the Triangle area.

"We always have people say, 'you know, I really understood the issues a lot better, and I really understood the performance a lot better after having the opportunity to discuss it,'" King said. "So what one wants to do is to foster those opportunities, to encourage the community outside of the hospital and university to interact with the medical community."

Myra Collins, M.D., associate professor of pathology and director of the UNC Hospitals Transfusion Medicine Service, got involved in the Staged Readings Program two years ago, she said, "just for fun and from a strictly personal interest." But as she performed, Collins, who describes her approach to life as "once strictly scientific," realized the impact the readings had on the community.

"As I performed in the Staged Readings Program, I became aware of the importance of the many ways physicians and the general community interact; after all, in my specialty, the blood supply is provided by the community. We have an obligation to learn as much about each other as possible. I think the role of the doctor and how it is defined is very important."

While the efforts of the Arts and Humanities Program are designed to serve the medical community here at the UNC School of Medicine and UNC Hospitals, alumni and the local community also benefit. Already the alumni association supports the annual Spicer-Breckenridge lecture, which focuses on ethics, and has sponsored tours of the Ackland Museum for medical alumni. The program will soon invite participation from local artists and recently sponsored a community showing of "The Power to Heal," a photographic display of the healing art.

One key to the success of the Arts and Humanities Program is promotion, Easterling said. Currently, events are publicized through local publications, flyers and by word-of-mouth. "We are charged with making sure that medical students and the medical community as a whole are aware of the cultural activities that happen on this campus and support them."

"Science, the arts and the humanities all contribute to the creation of a caring medical center as well as consummate physicians and an excellent staff," Easterling said.

"It shows patients that we care about them as people, in this, sometimes technology-laden environment, and at the same time offers staff, students and faculty an outlet and a chance to enrich themselves personally while becoming well-rounded individuals." □

# A Different Way to Educate

**By Barbara J. Proujan**

Educators have long agreed that students learn in different ways. Some learners are challenged and rewarded by standard curricula; others respond more vigorously to different educational paths.

One of the most tangible expressions of this pedagogic philosophy at the UNC School of Medicine is the Distinguished Medical Scholars Program.

The program was started in 1991, and since has involved 11 medical students. William B. Blythe, M.D., professor of medicine and chief of nephrology, was among the founders. Blythe continues to serve in the program, along with former Department of Surgery Chair Colin T. Thomas, M.D., and John S. Kizer, M.D., professor of medicine and pharmacology. Kizer is program director.

"The program's goal is to provide an academic challenge and training in independent analytical thought to promising medical students about issues in medicine, social medicine, economics and other areas that will impact on their lives," Kizer said.

"In short, it's an opportunity for students to think and learn in a new and different manner. It can make them better students and, eventually, better physicians." Funding from the Burroughs Wellcome Company, the Dean's Office and from alumni pays for three to five Distinguished Medical Scholarships a year. Once selected, honors students participate in an extra year of medical school after their third year.

The extra year consists of an independent, scholarly pursuit with a faculty mentor. Students can chose to do laboratory research, an epidemiological study or any other feasible academic enterprise approved by Kizer, Blythe and Thomas.

Additionally, students prepare for and attend bi-weekly seminars. The seminars continue through the remainder of their medical school experience. "The seminars emphasize various patient populations, problems and public health issues," said Thomas.

> "In short, it's an opportunity for students to think and learn in a new and different manner. It can make them better students and, eventually, better physicians."
>
> John S. Kizer, M.D.

Topics discussed during the last three years include: the rights of the unborn, estrogen replacement therapy, hypertension treatment, legalizing drugs, chronic fatigue syndrome and psychiatry in the courtroom.

According to Thomas, these seminars require rigorous student preparation and participation. Students review literature and make 10- to 15-minute abstract presentations. Senior students, those in their second year of the program, discuss the information in more detail, and everyone then has the opportunity to present their opinion.

"For each topic we read about 40 different papers," said Stephanie Heindel Kaplan, M.D., resident in Obstetrics and Gynecology at UNC, and one of the first students to participate in the program.

"I was surprised at the sense of depth of these evaluations," Thomas said. "The students are just fantastic in terms of their efforts in reviewing the topics. Often one student takes a pro position and another takes a con position and we try to come to a conclusion. But some medical questions have no firm answers."

Kizer invites all third-year students to consider the program. To apply, students submit a curriculum vitae, university transcripts and a one-page letter detailing why they think they will benefit by participating. "We seek to serve those students who are very sharp, very enthusiastic and who have a high capacity for learning; but, the people we accept don't have to be the ones with the best grades," Kizer said.

The program has been enthusiastically received, Kizer said, with 15 applicants the first year. Each student's application is reviewed by Kizer, Blythe and Thomas, who then interview candidates to decide who might potentially gain the most from the experience.

Kizer says Helen Bellar is a typical participant. She is beginning her final year of medical school and is in the second year of her honors program. Prior to medical school, Bellar ran a restaurant. She had no medical experience or background.

She says she applied because she wanted to see what scientific research was like and whether this was a career path she wanted to take. "Participating in the program gave me the opportunity to begin to develop critical thinking skills. Instead of taking what's handed to us as gospel, we were going back to the source and questioning it to look at things critically.

Photo by Paul Dargis

*Medical student Helen Bellar studies abdominal adhesions as part of her participation in the Distinguished Medical Scholars Program.*

"At the time, I wasn't sure that I wanted to go into academic medicine. Now, I feel confident saying I want to go into this area."

Bellar's research focused on abdominal adhesions sometimes formed after a patient has undergone surgery. A literature search showed her that physicians know very little about the pathophysiology of how these tissues form and that many current treatments were based on assumptions. With Mark J. Koruda, M.D., assistant professor of surgery and nutrition, and Albert J. Banes, Ph.D., professor of plastic and reconstructive surgery, as her mentors, Bellar tried to answer questions such as: What are the adhesions made of? What is the origin of the cell that produces these lesions? Why do they form?

"With Bellar's research, it became clear that some of the previous research in this area was not well done," Thomas said. "Her work has contributed to a better understanding of this field."

The program is more than an opportunity to perform scientific research, Blythe said. "The purpose is to provide an academic challenge and training in independent analytical thought to promising students, not solely to encourage more physicians to consider research as a career, but to produce more students who are capable of in-depth, critical analysis and searching independent thought. If you think critically about something," he said, "you'll do a better job at it."

Larry Padgett Jr., M.D., an alumnus of the program now at the Mayo Clinic in Rochester, MN, wrote about his experience in the program after his first year: "The literature analysis skills required and expected of us by the committee increased my ability to critically review the literature to determine the proper therapy for perplexing medical problems. The seminars have helped me look beyond the recommendations of others and to formulate my own thoughts. . . . The Distinguished Medical Scholars Program has been, in my opinion, the most valuable piece of my medical education to date."

Kizer said, "Students in this program become capable of evaluating complex issues by determining what medical evidence is useful and what evidence is missing, often for topics that do not have clear-cut answers, or any answers at all.

"It's unbelievable how much students in this program grow in one year with the exposure they receive. They question everything and are thinking about everything. Their reasoning skills improve. Initially, they are less focused, but by the end of two years they are very focused."

Kaplan says her experience allowed her to "integrate clinical work with the theoretical conclusions drawn from the articles reviewed. No similar experience exists in the standard medical school curriculum for such intensive evaluation of controversial topics."

Bellar adds, "Having the opportunity to learn in this manner was invaluable." □

# Don't Lose Any Sleep Over It

**By Barbara J. Proujan**

Sleep is a mystery. Why we do it is unclear, but it's necessary. And losing a little sleep now and again won't hurt you, but when the losses build up or a person chronically does not sleep well then it's a cause for concern.

At the University of North Carolina School of Medicine, investigators from the departments of pulmonary medicine, neurology and pediatrics use a comprehensive approach to understand and treat organic sleep disorders.

"Although many people think that they should have eight hours of sleep every night, what's normal varies from person to person," said Brian Boehlecke, M.D., associate professor of medicine and clinical associate professor of epidemiology. "You have to be the judge of your actions. Falling asleep at traffic lights, or while talking on the phone, or reading a book you're enthusiastic about is not normal."

For decades, the majority opinion of the medical community was that loss of sleep and sleep disorders were insignificant. If patients complained about having problems sleeping or being excessively tired, it was all in their heads, or it was just a passing phase, or these patients just needed to go to bed earlier.

But sleep disorders, which include sleep apnea, narcolepsy and insomnia, are affecting a growing number of adults. "We see four to six new patients each week," Boehlecke said.

The National Commission on Sleep Disorders Research estimates that 40 million Americans have chronic sleep problems that disturb them or disrupt their lives; about 15 million people suffer from breathing disorders that disrupt sleep and another 25 million have persistent sleep problems caused by illness or psychiatric disorders.

Photo by Jon Wangaard

*Bradley V. Vaughn, M.D., assistant professor of neurology and co-director of the UNC sleep laboratory (foreground) and Brian Boehlecke, M.D., associate professor of medicine and clinical associate professor of epidemiology, examine some of the yards of paper from a patient's sleep study showing such measurements as heart rate, eye movement and electrical activity in the brain.*

# Other Sleep Maladies

Sleep researchers in the UNC School of Medicine are involved in studying and treating a variety of disorders related to sleeping.

Bradley V. Vaughn, M.D., assistant professor of neurology and co-director of the UNC sleep laboratory, says that "many sleep disorders are associated with autonomic effects such as high blood pressure, night sweats, gastric problems and tachycardia (rapid heartbeat)."

Using a technique called heart period variability, Vaughn and other investigators measure variation in time from one heart beat to the next one and how that changes. "The variation in the beat to beat intervals tell us what is going on with the autonomic nervous system." He recently presented this information at the World Congress on Sleep.

Vaughn also has studied sleep apnea in epileptic patients and has had surprising results. "In about six patients so far, we have dramatically reduced the number of seizures they had or made them seizure-free by treating their sleep disorder," he said. "One of my first epilepsy patients here had apnea periods while sleeping. We studied him in the lab and it turns out that he had terrible sleep apnea. We put him on CPAP, continuous positive airway pressure, and he went from having three to four seizures per month to no seizures."

A different patient had more than 40 seizures per month and after his sleep disorder was diagnosed and treated with CPAP, he now has less than one seizure per month, Vaughn said.

Another test Vaughn and other investigators use to help them diagnosis sleep disordes is the multiple sleep latency test. For this test, patients take five naps at two hour intervals and are monitored to determine how quickly they fall asleep and whether they go into REM sleep. "If patients fall asleep in less than five minutes, they are pathologically sleepy; if they take 10 minutes or longer they are normal," Vaughn said. "If we see REM sleep two times it suggests they have narcolepsy." Narcoleptics have irresistible bouts of sleep at inappropriate times in association with cataplexy, sudden falling spells. Narcolepsy usually appears during the second decade of life or later and affects about 125,000 people in the United States.

*If sleep disorders go undiagnosed in children, their grades may suffer.*

A patient population that has sleep disorders but is often overlooked is children. According to O'Neill F. D'Cruz, M.D., clinical assistant professor in neurology, "Children are supposed to naturally sleep well. It is a matter of concern if a child does not."

Children tend to present with different problems than adults with sleep disorders, D'Cruz said, which may make it more difficult for parents to determine that there is a problem. Instead of appearing sleepy when they are sleep deprived, children may become irritable, aggressive and hyperactive.

The sleep program staff sees about four children per week. "Many times in a typical physician's office setting, people do not bring up their child's sleep problems. They don't think of it as potentially curable, they think it is something they and the child have to live with, but when I ask parents about a child's sleep habits, at least half have some concerns."

D'Cruz is researching the effects of sleep deprivation on school performance. After receiving treatment for sleep disorders these children have dramatically improved their school grades. "One child I studied was diagnosed with narcolepsy at an unusually early age and went from a C average to an A plus after appropriate treatment."

According to Bradley V. Vaughn, M.D., assistant professor of neurology and co-director of the UNC sleep laboratory, the causes of many major industrial accidents including the Exxon Valdez oil spill, the Chernobyl nuclear reactor meltdown and the deadly gas leak at Bhopal could be traced to human error caused by severe fatigue.

Vaughn cites the case of one UNC patient as an example of the debilitating effects of a sleep disorder. "This man had been known to fall asleep while talking on the telephone. He couldn't sit down and watch television for more than five minutes without dozing off.

"His constant drowsiness affected his job, and his family was concerned and confused with his need for around-the-clock naps. The man said he was afraid to get behind the wheel of a car for fear he would fall asleep."

Vaughn said the 48-year-old patient usually climbed into bed at 10 p.m. and got up at 8 a.m., "but he said he woke up just as tired as he was the night before."

In this case, as with other patients who come to UNC with the symptoms of a sleep disorder — such as excessive daytime sleepiness — the first step is to be seen by a physician in the sleep clinic and to have a full patient history taken.

Often, this results in the patient being scheduled for at least one overnight sleep study in UNC Hospitals' Sleep Laboratory.

While patients sleep in a bed in the laboratory, they are monitored by electrodes and video cameras, under the watchful eye of a certified sleep technologist.

Electrodes are connected to the patient's head, chest, abdomen and legs. Measurements taken from these areas of the body help define the stage of sleep the person is in and often reveal abnormalities that are disrupting sleep. Despite the unfamiliar surroundings and the wires, most patients are so tired they fall asleep quite quickly, Vaughn said.

Researchers say there are five stages of sleep and how much time, if any, the patient spends in each stage is important for the diagnosis. The first stage is drowsiness; the second stage comprises about 40 percent of average adults' night-time sleep; the third and fourth stages comprise the deep, quiet, restorative sleep that is necessary to feel refreshed; and the fifth is REM, Rapid Eye Movement sleep, which is associated with vivid dreaming. According to Boehlecke, most normal sleepers cycle through these states, usually experiencing about four episodes of REM sleep per night. "If the person's sleep is constantly disrupted they may never get enough quality rest," he said.

As was the case with the patient cited previously, Vaughn says a condition known as sleep apnea turns out to be the cause of the sleep difficulties many of his patients experience. Approximately ten to fifteen million people in the U.S. suffer from this disorder, a condition that causes its victims to stop breathing periodically while they sleep.

Frederic L. Eldridge, M.D., professor of medicine and physiology, says these apnea episodes may last from 10 seconds to several minutes. Usually the interrupted breathing results in lowered levels of oxygen in the blood.

"People with sleep apnea have at least five episodes per hour and can have as many as a hundred," Eldridge said. "Most patients actually have to wake up to breathe, but they don't remember these brief arousals. However, they'll notice that upon waking they're exhausted."

Although not present in all patients, the symptoms of sleep apnea are snoring, daytime sleepiness, poor concentration, reduced memory and a tendency to fall asleep at inappropriate moments, Vaughn said. "These symptoms are often overlooked or regarded as signs of stress, psychological problems, aging or just a normal condition.

"Sleep apnea, which is often found in overweight individuals, can be associated with serious problems such as hypertension, stroke and myocardial infarction. However, the condition can be easily diagnosed and treated," Vaughn said. The treatment of choice, he says, employs a machine to deliver continuous positive airway pressure, or CPAP.

Nasal CPAP is a small electric pump connected to a mask that fits over a patient's nose and puffs in air at a prescribed pressure to keep the airway open. Patients must lose weight, if possible, and avoid alcohol and certain sedatives that aggravate this condition. Sometimes methods to keep the patients on their sides while sleeping are sufficient, but many will need to continue to use CPAP for their lifetime to prevent sleep apnea. Boehlecke says patients treated in this way often report dramatic positive changes.

"They say we've changed their lives."

## Better Sleep Checklist

UNC Sleep Center staff recommend a few simple tactics people who are experiencing sleep difficulties can try before seeking professional help:

- ❑ Never use the bedroom for anything but sleep and sex. Read, watch TV, exercise, eat or argue someplace else.
- ❑ Lie down intending to go to sleep only when you are sleepy.
- ❑ If you are unable to fall asleep within 25 minutes, get up and go to another room. Stay up until you feel sleepy then return to bed. If you still are unable to fall asleep get up again.
- ❑ Set your alarm to get up at the same time each day regardless of how much sleep you got during the night.
- ❑ Turn on the lights or walk outside in the sunlight when you wake up in the morning.
- ❑ Do not nap during the day.
- ❑ Exercising in the morning or late afternoon will help you sleep, but exercising in the late evening will stimulate your body and make sleeping more difficult.
- ❑ Eat your evening meals at least two hours prior to going to bed.
- ❑ Avoid caffeine and refined sugars in the evening. Foods like chocolate, coffee, tea and soda will inhibit sleep.
- ❑ Avoid the use of over-the-counter sleep medicines.
- ❑ Relax in the evening before going to bed. Try not to rehash the day's problems.

# Development Notes

## Endowment Fund Board Awards First Grants

The Medical Endowment Board of the UNC Medical Alumni Association has awarded grants for 1993-94 to two UNC School of Medicine faculty and two UNC Hospitals housestaff members.

Hrair-George Mesrobian, M.D., associate professor of pediatric urology, received $5,000 to study "The establishment of Danforth mice as a naturally occurring model for the study of compensatory renal hypertrophy." John T. Woosley, M.D., assistant professor of pathology, received $3,300 to study "Liver biopsy pathology case file for pathology residents" with a gastroenterology fellow and medical students.

John H. Krege, M.D., in the Department of Medicine, was awarded a $2,000 grant to examine "An animal model for studying the role of angiotensin-converting enzyme (ACE) in hypertension, and John A. Hopper, M.D., in the Department of Pediatrics, received a $415 grant to study "Fever pathophysiology and management: An educational intervention for third-year medical students."

The underlying purpose of the Endowment Fund was to provide a way that alumni could support the School of Medicine, said Joseph D. Russell, M.D., chair of the Medical Alumni Endowment Board.

"It was a banner day when we made these awards, and all alumni should feel extremely proud of our accomplishment," Russell said. "The awarding of the first grant completes the circle. We came to school here, the school gave to us, we achieved, and now, by awarding these grants, we're giving back to the school."

Medical Endowment Fund grants are funded from interest earned on gifts to the Medical Alumni Endowment Fund, and the amount of interest available determines the number of grants that will be made, said Russell. "Unfortunately, the grants are meager in comparison to what is needed. There is always going to be a need for this fund to grow to make our school the best it can be. We need to continue to build on what we have, so that we can provide more."

Members of the executive committee of the Medical Endowment Fund are: Richard W. Boyd, M.D., of Statesville; Luther W. Kelly Jr., M.D., of Charlotte, Noel B. McDevitt, M.D., of Southern Pines; Joseph D. Russell, M.D., of Wilson, and William W. McLendon, M.D., of Chapel Hill. Ex officio members are Stuart Bondurant, M.D., dean of the medical school, and William E. Easterling Jr., M.D., associate dean for alumni affairs.

In addition to the Medical Endowment Fund, alumni can help meet the needs of the UNC School of Medicine by giving to the Loyalty Fund which supports a variety of student, alumni and faculty programs, and to class and county campaigns. All gifts and pledges received through June 30, 1995, will be credited toward the School of Medicine's $47 million portion of the UNC Bicentennial Campaign, which has a $320 million goal.

## Loyalty Fund Gifts Top Goal

Alumni giving to the Loyalty Fund of the Medical Foundation of North Carolina keeps getting better every year — reaching $426,000 for year ending June 30, according to John W. Foust, M.D., '55, national chair of the fund.

"We are really excited about results, because we way surpassed our goal of $350,000," he said. "While alumni giving looked good, our participation rates didn't go up as much as we had hoped, only 2 percent over last year."

Some 28 percent of alumni, or 1,217 of 4,300 alumni, participated in the Loyalty Fund this year. Leaders had hoped to reach 33 percent.

Some of the increase in giving can be attributed to growth in the number of Loyalty Fund Associates who contributed $1,000 or more to the Loyalty Fund and joined the Co-Founders' Club, the umbrella recognition club for gifts of $1,000 or more to the medical school.

"It's been rewarding to see more alumni decide to become Loyalty Fund Associates," said Jane McNeer, director of development for the Medical Foundation. In 1992-93, we saw the Associate membership increase to 232, 58 more members than we had last year. This area has traditionally been a strong one, with membership increasing almost five times what it was when we started in 1989-90."

Goals for next year are $450,000 with a 33 percent participation rate.

"We have taken great care in estimating alumni giving goals for the coming year," Foust said. "We have taken a realistic look at our needs and what we can accomplish. We are certain alumni continue to realize how much their contributions are needed. Our contributions make the margin of difference."

Loyalty Fund gifts yearly provide scholarships, support the Health Sciences Library and help sustain many ongoing programs such as the Whitehead Society and student research publications.

### Loyalty Fund Progress Over the Years

| | 1993 (unaudited) | 1992 | 1991 | 1990 | 1989 |
|---|---|---|---|---|---|
| Dollars | $426,000 | $332,000 | $225,000 | $137,000 | $56,000 |
| No. of Donors | 1,217 | 1,106 | 801 | 740 | 333 |
| % Participation | 28% | 26% | 20% | 20% | 9% |
| Average Gift | $350 | $300 | $282 | $185 | $168 |
| Associate Membership | 232 | 174 | 101 | 48 | n/a |

# News Briefs

## Cystic Fibrosis Mice Studies Yield Results

In August 1992, scientists at the UNC School of Medicine announced a major breakthrough in studying cystic fibrosis: the first animal model for the deadly inherited lung disease.

Researchers say that the mouse model has yielded its first practical payoff in improving their understanding of how the disease works.

New studies with the mice show conclusively that the defective gene responsible for cystic fibrosis controls several different aspects of how epithelial cells function.

"Cystic fibrosis is a disease of defective chloride channels, but it's been hard to envision how a defect in one chloride channel could affect so many processes," said Sheif Gavriel, research associate in medicine and an author of the report. "There are altered sweat chloride levels and also abnormal salt and water content of fluid on the surface of airways and in other epithelial organs, including the intestines and pancreas. These abnormalities lead to obstructions that impair normal function."

Using the mice, which lack the cystic fibrosis gene product known as CFTR, the scientists found that besides functioning as a chloride channel itself, CFTR controls the function of another protein.

"We were able to prove that the cystic fibrosis protein CFTR unequivocally regulates a distinctively different chloride channel and that in the CF mouse, this regulation is defective," Gabriel said. "Our new work is the first direct evidence of a second function for CFTR and may help in explaining the many symptoms associated with the disease. Down the road, this should be important as we try to identify alternate chloride channels we can activate to restore normal chloride function in cystic fibrosis patients."

Other UNC authors of the report, which appeared in the May 20 issue of *Nature*, were Richard C. Boucher, M.D., director of the UNC Cystic Fibrosis Center, and M. Jackson Stutts II, Ph.D., research associate professor of medicine.

## Biotech Treatments for Cancer Studied at UNC

For several decades the goal of many researchers and physicians has been to find a cure for cancer, or at least a better treatment that does not harm the patient.

This may be an actuality in five to 10 years, as standard treatments get a boost from a new generation of cancer-fighting weapons — biological agents. The hope for these treatments is that they will better control or extinguish cancer or someday possibly prevent it.

At UNC Hospitals and the UNC School of Medicine, several leading-edge biological cancer therapies are being studied to determine their effectiveness, and background research into the development of others is ongoing.

"Biotechnological treatments are a real departure from the way cancer has traditionally been treated," said Howard Ozer, M.D., professor of medicine and chief of oncology and a member of the UNC Lineberger Comprehensive Cancer Center.

Ozer currently is studying the monoclonal antibody, CAMPATH-1H, which is given as a shot to patients with non-Hodgkin's lymphoma and chronic lymphocytic leukemia, the latter of which is the most common adult leukemia.

With monoclonal antibodies, a large number of laboratory-grown antibodies specifically seek out the antigens found on cancerous tissue and destroy the cells.

Unlike current drug treatments that indiscriminately kill any rapidly dividing cells, or radiation treatments that also will kill healthy cells, monoclonal antibodies should only target cells with the specific antigen for which they were made.

Also for non-Hodgkin's lymphoma, Ozer is studying macrophage colony stimulating growth factor, a protein that stimulates the macrophages of the immune system to attack cancer cells. These cells are more potent or 'juiced up' than regular macrophages. The investigators hope that by using this factor, which is also given as a shot, that patients' own cells will be more effective at seeking out cancer.

Ozer and his colleagues also are investigating the use of interleukin 4 as well as alpha interferon to treat multiple myeloma. These factors, called cytokines, are proteins that enable cells to communicate with each other and are administered as a shot also, Ozer said. Both of these factors tell some cells to stop dividing, and may halt the growth of cancer cells. Currently, there is not much to offer these patients, but interferon may prolong patients' lives, Ozer said. "Alpha interferon is not a homerun, but it is a single. It represents a first step toward actually using genetic engineering to make treatments for cancer patients."

For a therapy to be truly effective, however, investigators first need to understand cancer at the molecular level, and then perhaps treat it there.

The work of H. Shelton Earp, M.D., deputy director of the UNC Lineberger Comprehensive Cancer Center, professor of medicine and pharmacology and Lineberger Professor of Cancer Research, addresses this issue with research involving gene therapy.

With gene therapy, investigators replace defective genes or control the expression of genes inside cells at the molecular level.

Gene therapy as a treatment for cancer differs from gene therapy being considered for diseases such as cystic fibrosis or hemophilia, Earp said. "The replacement genes necessary to correct these other defects are known and correcting them will be an important technical advance, but for gene therapy to be effective in cancer, we will first need to understand the origin of cancer and its progression at the molecular level."

Many investigators in the Lineberger Center are working to understand the pathways that regulate normal cell growth and determine how they go awry in cancer cells. "We want to know why some mutations or changes can lock the cell's growth control pathways to the "on" position, such as in breast, lung or brain cancer, thus, fueling the tumor's unregulated growth," Earp said.

"With this research as well as other studies being conducted here, we hope to be at the forefront of institutions taking a biotech

# News Briefs

approach to cancer therapy in the 21st century," Earp said. Although some of these biological therapies are the treatments of the future, at UNC Hospitals, many patients are benefiting today.

## UNC Makes Strides in Pediatric Pain Management

Significant advances in pediatric postoperative pain management have been made over the last few years at North Carolina Children's Hospital. "We are very committed to providing the best and safest postoperative pain management," said Robert D. Valley, M.D., assistant professor of anesthesiology at the UNC School of Medicine.

Previously, most postoperative pain management in children had been confined to "as needed" intramuscular shots. "Now, we use in-dwelling catheters or 'single shots' of medication in the epidural space [near the spine] for management of many types of postoperative pain. The anesthetics we use can provide pain relief for days rather than hours," he said.

The in-dwelling catheter provides patients with a constant level of a painkiller and keeps them from being in severe pain or being too heavily sedated. Additionally, with this technique, the anesthesiologists can block pain perception within one area, the middle of the chest for example, and nowhere else.

"We have expanded on this technique by adding a patient-controlled analgesia (PCA) option to the epidural pain management. Although intravenous PCA use is fairly common, we are one of only a few institutions offering epidural PCA," Valley said. With PCAs, the anesthesiologists provide a baseline level of continuous pain medication, but also give patients the option of infusing more drug at the touch of a button, if the pain becomes too intense.

"Although the patients can push the button as many times as they want, the pump will deliver only a pre-calculated amount of drug per hour," Valley said. The number of doses allowed per hour and the amount of the drug per dose is determined in advance by the anesthesiologist.

"For children who are old enough, the PCA option is very helpful," he said. Patients as young as age 5 have used PCAs at UNC Hospitals.

## UNC Researchers Develop Heart Monitor

UNC researchers have invented a new portable heart monitoring device, called AIM, Ambulatory Impedance Monitor, that will benefit cardiologists and their patients by showing how well a patient's cardiovascular system is working. The device will enable medical researchers and cardiologists to follow patients and their progress in an office, in the hospital, or while the patient is at home or work.

Developed by Stan Hutcheson, lecturer of biomedical engineering in the Department of Psychiatry and the Center for Alcohol Studies, AIM will enable physicians to obtain cardiac performance information easily, accurately and without having to do potentially risky invasive procedures, he said.

The instrument can be used with another portable device that measures blood pressure, the Accutracker 102, previously developed by Hutcheson.

"Measuring blood pressure alone gives us only part of the picture of the cardiovascular system," he said. There are numerous other functions associated with the cardiovascular system that are interrelated and can affect or be affected by blood pressure, he said.

"Knowing blood pressure and heart rate are not enough to analyze of the total cardiovascular system, but the new device will enable cardiologists to see a more complete picture and better treat patients by providing estimates of cardiac output and other measures," Hutcheson said.

About the size of a Sony Walkman™ cassette player and weighing less than one pound, the device is worn on a patient's hip for up to 24 hours and runs on three small batteries. The device is so small and unobtrusive that patients do not notice it, he said.

Up to 300 measurements of how the cardiovascular system is performing can be automatically determined during this time and then viewed on a calculator-like display. Additionally, a physician can link the small device, which contains a microminiature computer the size of a quarter, to a personal computer and print out the results or display the data using interactive color computer graphics. Data obtained by the device are stored inside it for up to 10 years even with the batteries removed.

"In the past the only way to obtain similar information was by an invasive procedure such as cardiac catheterization, or by injecting a dye into an artery and monitoring the changes over time," Hutcheson said. The newly created device indicates what the heart is doing as it happens, he said.

Cardiac performance data can be obtained at intervals pre-selected by a physician, or the patient can capture information on command if there is a need. For example, if the patient were experiencing chest pains, he could start recording data. "When the chosen time interval is over, the data are already analyzed and ready to display," Hutcheson said.

According to Hutcheson, AIM could be used for better cardiac drug dosing, to monitor patients after heart attacks or by-pass surgery and to monitor patients suspected to be at risk for various heart problems. It also may reduce the need for some invasive procedures such as catheterization.

## Studies of Polyps May Help Prevent Colon Cancer

About 90 percent of all colon cancers arise from polyps in the colon. If doctors could prevent polyps from occurring in the first place, they could reduce the incidence of cancer, according to research being conducted at the UNC School of Medicine.

"Colon polyps are benign," said Robert Sandler, M.D., associate professor of medicine. "But there are some factors that cause polyps to develop and other factors that cause them to turn into cancer. If we could identify the risk factors for polyps, then we could prevent them and colon cancer."

According to Sandler, it might be easier to identify the risk factors for polyps than for cancer because polyps develop in a much shorter period of time. Colon cancer claims about 60,000 Americans yearly and about 157,000 new cases are diagnosed every year, he said.

In a study published June 10 in the *Journal of the National Cancer Institute*, Sandler found that carbohydrates, fruits and vegetables were protective against the development of polyps. Other dietary factors increased a person's risk for polyps; these were the intake of fats and red meats.

For example, the researchers determined that women who ate a lot of red meat were more than two times as likely to develop polyps than those with diets high in white meats such as chicken or fish. "The findings in men were similar but not statistically significant," Sandler said.

"Although these results previously have been shown for colon cancer, our study shows that these factors cause polyps to form in the first place not to cause polyps to turn into cancer," he said. "Our findings reinforce the dietary recommendations from the National Heart, Lung, and Blood Institute and National Cancer Institute to encourage people to have a low-fat diet, eat more fruits, vegetables, chicken and fish and eat less red meat."

*Robert Blake, M.D., (far right) professor of family and community medicine at the University of Missouri, leads the panel discussion during the first advisory board meeting of the Institute of the Generalist Physicians held in July. (From left) Peter Curtis, M.D., professor of family medicine and Institute director; Timothy Carey, M.D., professor of medicine and Institute co-director; Stuart Bondurant, M.D., UNC School of Medicine dean; and Eugene Mayer, M.D., North Carlina AHEC Program director, also participated in the discussion, which focused on ways medical schools, communities and health care organizations can work together to address the shortage of primary care physicians. Blake is also national coordinator of the Generalist Initiative of the Robert Wood Johnson Foundation.*

In a study published in May, Sandler and his colleagues determined that alcohol also is a risk factor for causing polyps and thus colon cancer. The investigators reported that men who drank the most alcoholic beverages, particularly beer, were four times more likely to have polyps than non-drinkers.

"A number of other studies have shown that beer is a risk factor for colon cancer," he said. "Our research tells us that alcohol may work to turn polyps into cancer."

Sandler currently is studying whether taking aspirin or calcium decreases a person's risk for polyps. Taking aspirin on a regular basis has been associated with a reduction in a person's risk of getting colon cancer.

"Although there has been extensive news coverage recently about aspirin being protective in colon cancer, these studies don't address why these people were taking aspirin," he said. "Was there some condition for which they took aspirin that protected them? Was it their lifestyle? Or, was it the aspirin?"

This study involves giving people either aspirin or a placebo compound to determine if aspirin shows any ability to prevent the formation of polyps. "We can't wait long enough for these people to develop colon cancer because that could be years or decades, but polyps grow in about two to three years," he said. This study, for which Sandler is the principal investigator, is a national multi-center study sponsored by the National Cancer Institute.

# News Briefs

## New Cancer Therapy Offered as Outpatient Procedure at UNC Hospitals

A cancer therapy that enables patients to be treated as outpatients instead of requiring several days of hospitalization now is available at UNC Hospitals.

Called high dose rate radiation therapy, "this treatment is used particularly for patients with cancers of the uterine cervix, lung and esophagus," said Mahesh A. Varia, M.B., associate chair of radiation oncology in the UNC School of Medicine.

With this treatment, radiation from the radioactive source iridium is delivered to the cancer by a computer-controlled device operated by a physician. This localized radiation destroys the cancer cells while minimizing the radiation dose to the surrounding normal tissue.

"High dose rate radiation therapy has many advantages over conventional low dose rate radiation therapy and the clinical results appear to be similar," Varia said. With the conventional therapy, patients are taken to the operating room, receive anesthesia and have special applicators placed in the cancerous organs. The applicator is then loaded with radioactive sources for the cancer treatment.

Patients have to be isolated and confined to bed for two to three days in the hospital with severe restrictions on movement during this time.

"With the new technique, the treatment dose rate is much higher, so the treatment time is shortened greatly," Varia said. "General anesthetic is not required and treatments are given as an outpatient procedure. The patient is observed on television monitors during the few minutes it takes to give the treatment. The patient then can go home in about two hours after recovering from the sedation," he added.

"Radiation exposure to the medical and nursing staff is completely eliminated by this new device as the radioactive source is handled by remote control," said Sha Chang, Ph.D., director of clinical physics and clinical assistant professor of radiation oncology, who is responsible for the technical aspect of the high dose radiation therapy.

Varia said only a handful of hospitals in the state currently offer this treatment, and UNC Hospitals is the only hospital in the Triangle area. Treatment is provided in a special room equipped with both a diagnostic X-ray unit and the high dose rate treatment machine. "For patients, this means that the procedure is faster and more comfortable," he said. "Patients don't have to be moved around between an X-ray room and a treatment room."

The entire procedure takes about two to three hours. "Patients appreciate being able to return to their family immediately after the procedure and going home the same day," said Shirley Freeman, radiation oncologist nurse.

Although UNC Hospitals will continue to offer low dose treatment, high dose therapy is appropriate for a selected group of patients. According to Varia, the high dose rate treatment can be considered for patients with other types of cancers requiring implant-type radiation therapy.

## Fifth Annual Clinical Cancer Conference Scheduled

A panel of nationally recognized speakers will discuss the challenges in the prevention and treatment of lung cancer at the Fifth Annual Clinical Cancer Conference scheduled for Friday, October 29. Held in conjuction with Fall Medical Alumni Weekend, this conference will provide the practicing internist, family physician, general surgeon, thoracic surgeon, radiologist, radiation oncologist, hematologist/oncologist, lung cancer basic scientist and preventive medicine specialist with the latest information regarding cancer.

The conference will examine the "Primary and Secondary Prevention of Lung Cancer: The Emerging Idea of Cancer as a Continuum;" Lung cancer case presentations, in which attendees are invited to present their difficult or unusual cases to the panel; and "Controversies in the Clinical Care of Bronchogenic Carcinoma." Speakers include Michael B. Sporn, M.D., of the Laboratory of Chemoprevention at the National Cancer Institute; John D. Minna, M.D., director of the Simmons Comprehensive Cancer Center in Dallas, TX, Robert J. Ginsberg, M.D., surgeon and chief, Department of Thoracic Surgery at Memorial Sloan-Kettering Cancer Center in New York, and from UNC, Joel E. Tepper, M.D., professor and chair of the Department of Radiation Oncology; Frank C. Detterbeck, M.D., assistant professor of surgery, Mark L. Graham II, M.D., assistant professor of medicine, and Victor J. Strecher, Ph.D., of UNC School of Public Health.

The conference is sponsored by the UNC Lineberger Comprehensive Cancer Center, the Office of Continuing Medical Education and Alumni Affairs, the UNC Clinical Cancer Program, and the departments of medicine and surgery. Registration deadline is October 15. Call 919-962-2118 for more information.

## School of Medicine Honored for Training Psychiatrists

The UNC School of Medicine and the N.C. Department of Human Resources' Division of Mental Health, Developmental Disabilities and Substance Abuse Services have been honored for a collaborative program that trains Tar Heel psychiatrists.

The project, run by the UNC Department of Psychiatry and Dorothea Dix Hospital in Raleigh, received the Award for Exemplary State/University Collaboration, sponsored by the Pew Memorial Trust.

"This award recognizes sustained and outstanding accomplishment," said Stuart Bondurant, dean of the UNC School of Medicine. "It is a testment to the solid record of achievement based on mutually beneficial collaboration between the Department of Psychiatry and Dorothea Dix Hospital."

"For 20 years, the combination training and research program has generated a significant number of North Carolina's clinical psychiatrists, specifically publicly oriented psychiatrists," said David S. Janowsky, chair and professor of psychiatry. "It has led to more fully integrated public psychiatry training opportunities in the educational experiences of UNC residents and other trainees."

## Department Receives Award for Eye Research

The UNC Department of Ophthalmology has been awarded $60,000 by a New York-based philanthropic organization, Research to Prevent Blindness.

"Since 1979, Research to Prevent Blindness has awarded grants totaling more than $475,000 to UNC," said David E. Eifrig, M.D., chair of the Department of Ophthalmology. "We are very grateful for the organization's support, which really has been invaluable to us."

Eifrig said the money will help pay a physiologist's salary, support various research studies by medical students, residents and junior faculty and buy research equipment used in eye studies.

*To recognize Dean Stuart Bondurant's work as a past chair of its board of directors, the North Carolina Biotechnology Center in Research Triangle Park recently dedicated a pair of sculptures in his honor. The sculptures, which are located in the Ciba-Geigy Garden at the Center and are carved from white Italian carrara marble, also honor past chair Gerry Hancock. Bondurant, who served as Center chair from 1988 until September 1992, was instrumental in helping solidify its programs and activities through the design, funding and construction of its permanent facility in RTP.*

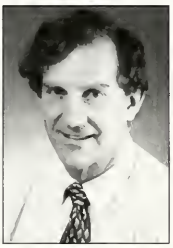
# Faculty Notes

Two UNC School of Medicine faculty members have been awarded 1993 Prevention and Control Research Awards from the UNC Lineberger Comprehensive Cancer Center. Each will receive awards totaling $30,000 to pursue research projects aimed at early detection and prevention of cancer.

**James E. Shaw, M.D.,** Robert Wood Johnson Clinical Scholar and instructor in the Department of Medicine's division of medical oncology, will study the beliefs of physicians and patients about mammography screening for older women. By using self-administered questionnaires, Shaw hopes to identify factors that contribute to how physicians promote mammography screening among older women.

**Bonnie C. Yankansas, Ph.D.,** assistant professor of radiology, will assess the feasibility of a population-based mammography data system. The database would collect mammographic characteristics of women receiving mammography in North Carolina. Such a database, if feasible, would serve as a tool for future research about trends in women's breast health.

**Gary Mesibov, Ph.D.,** professor of psychiatry, has been appointed director of the Division of the Treatment and Education of Autistic and Related Communication and Handicapped Children. During the past five years, Mesibov has worked closely with Eric Schopler, Ph.D., who founded the program in 1972. Mesibov came to UNC in 1974 and joined the program four years later to develop a program for adolescents and adults with autism. He also developed a distinguished interdisciplinary training model used internationally. He is a fellow of the American Psychological Association and a former co-chair and current member of the professional advisory board of the Autism Society of American.



*Mesibov*

**Robert N. Golden, M.D.,** associate professor of psychiatry, has received the Eugene A. Hargrove Research Award from the North Carolina Foundation for Mental Health Research. Shortly after his arrival to Chapel Hill in 1985, Golden was selected as chief of the Clinical Psychopharmacology Section of the Mental Health Clinical Research Center at UNC. His participation and contributions led to his appointment as associate director of the Mental Health Clinical Research Center in 1989 and associate director of the General Clinical Research Center in 1990. The Hargrove Award, which will be presented to Golden in September, commemorates Hargrove's contributions to mental health care in North Carolina and his recognition and support of research in the state system.

*Golden*

**Stephen A. Bernard, M.D.,** associate professor of medicine, participated on a panel to help reduce the cost of a widely prescribed anti-nausea drug. The panel, which was convened by the University Hospitals Consortium, endeavored to help UHC member hospitals significantly reduce their budgets for ondansetron (Zofran).

**Nancy Raab-Traub, Ph.D.,** associate professor of microbiology and immunology, has been appointed to the experimental virology study section of the National Institutes of Health's Division of Research Grants. Her appointment will last until June 1996. Membership on a study section represents a major commitment of professional time and energy, as well as a unique opportunity to contribute to national biomedical research, says Jerome Green, NIH division director. Raab-Traub is a member of the UNC Lineberger Comprehensive Cancer Center and studies the Epstein-Barr virus.

*Raab-Traub*

## Samulski Heads Gene Program

**Richard J. Samulski, Ph.D.,** has been appointed scientific director of the UNC gene therapy program, effective July 1. Samulski comes to Chapel Hill from the University of Pittsburgh where he was an associate professor biological sciences. He holds several patents for gene therapy-related research, and will investigate viral carriers and methods for getting functioning

*Samulski*

# Faculty Notes

genes to the appropriate tissues in the body.

"Dr. Samulski's expertise in gene therapy will complement the talents of our other researchers and clinicians and will greatly strengthen our capabilities for genetic research and the application of discoveries to improve the care of patients," said Dean Stuart Bondurant.

**Benson R. Wilcox, M.D.**, professor and chief of the Division of Cardiothoracic Surgery, Department of Surgery, has been elected vice president and president-elect of the Society of Thoracic Surgeons. He will assume the presi- dency in January 1994. He also serves as chairman of the American Board of Thoracic Surgery and represents the American College of Surgeons with the American College of Cardiology.

*Wilcox*

## Wiley Heads Pediatric Bone Marrow Transplant Unit

**Joseph M. Wiley, M.D.**, has been named associate professor of pediatrics and director of the pediatric bone marrow transplantation program. Starting this summer, the UNC School of Medicine and UNC Hospitals will provide pediatric bone marrow transplant services for children from North Carolina and the region. Wiley comes to Chapel Hill from the Johns Hopkins University School of Medicine where he was an assistant professor of pediatrics and oncology. "Dr. Wiley brings to us a wealth of experience and knowledge in the field of pediatric and adult transplantation," said Dean Stuart Bondurant. "His recruitment, pursued jointly by the hospital and medical school, underscores the broad institutional commitment that UNC has made to support this program now and in the years to come."

*Wiley*

Wiley earned his medical degree in 1982 from the University of Maryland in Baltimore. He completed internship and residency training in pediatrics and a fellowship in pediatric hematology-oncology before serving as an instructor and subsequently assistant professor in pediatrics and oncology. He is a member of numerous professional societies, including the Southern Medical Association, and is the co-author of more than 30 scientific articles, abstracts and book chapters.

**Jeffry F. Goodrum, M.D.**, research scientist at the Brain and Development Research Center and also a research assistant professor of pathology, has won the prestigious Weil Award from the American Association of Neuropathologists. Goodrum received the award in June. He is the second Brain and Development Research Center scientist to win the Award. Center Director Kunihiko Suzuki, M.D., received the award in 1970.

**Mark L. Graham II, M.D.**, assistant professor of medicine, has been awarded the James W. Woods Junior Faculty Award for 1993. The awards were established to support research and scholarship in the School of Medicine.

**Manuel E. Tancer, M.D.**, assistant professor of psychiatry and director of Psychopharmacology Clinic and the Crisis/ER Clinic, has been named the 1993-94 recipient of the Jefferson-Pilot Fellowship in Academic Medicine. He will receive a total of $12,000 to support scholarly endeavors.

# Class Notes

## Manning Berryhill Club

**Harold W. Glascock Jr., M.D., '32,** reports that he is living with his son, Harold III, and daughter-in-law in Williamsburg, VA. A former colonel in the Army medical corp, he served as a World War II and Korea Hospitals commander and research lab commander. He was awarded the Legion of Merit Medal.

**Truett Bennett, M.D., '43,** retired from a otolaryngology practice in Honolulu and is now doing general practice in Oriental. He still plays the oboe in community groups and goes sailing "when I have the time and energy."

**Kenan B. Williams, M.D. '43,** is enjoying gardening, golf and volunteering with the Lions Club and Red Cross in Sanford. He is retired from pediatrics.

## 50s

**Rebecca H. Buckley, M.D., '58,** is head of the Division of Allergy and Immunology in the Department of Pediatrics at Duke. She is heavily involved in bone marrow transplantation and says the she enjoys doing her job so much that she doesn't plan to stop anytime soon.

**Paul M. Weeks, M.D. '58,** is a board-certified plastic surgeon specializing in surgery of the hand and upper extremities. He and his wife, Doris, reside in Clayton, MO, where they enjoy snow skiing, sailing and fishing.

## 60s

**David R. (Rob) Williams Jr., M.D., '63,** of Thomasville, was recently elected to fellowship in the American Academy of Pediatrics. To qualify as a fellow of the Academy, a pediatrician must be certified as a fully qualified specialist in the field of child health. The Academy is an organization of 45,000 pediatricians dedicated to the health, safety and well-being of infants, children, adolescents and young adults.

**Joseph W. Griffin, M.D., '68,** is a professor of medicine at the Medical College of Georgia. He is planning a six-month sabbatical to study liver disease in London this summer. He and his wife, Diane, enjoy traveling having made trips to Hong Kong, Taiwan, Amsterdam, England and Australia in the past three years.

**John L. Kirkland, M.D. '68,** has been appointed chief of the Endocrine and Metabolism Service at Texas Children's Hospital in Houston, TX. His wife, Rebecca, is professor of pediatric endocrinology at Baylor/Texas Children's Hospital.

## 70s

**Marguerite G. Pennington, Ph.D., '72,** is director of an MLT Program and assistant professor of medical technology at a Dalton, GA, college. She plans to return to North Carolina after retiring this year.

## 80s

**Susan V. Lipton, M.D., '80,** is an associate professor of pediatrics at a college in Germantown, TN. She and her husband, Jack Spitznagel, are expecting a baby in September. They have a son Matthew.

**Nanetta Lowe Roache, M.D., '81,** chairs the Department of Surgery FHP in Guam.

**Tommy L. Megremis, M.D., '84,** reports that after he finished training at Indiana University in 1988, he started a practice, Carmel Ob-Gyn, in Charlotte. He added a partner last August. He and his wife, June, have two sons, Matthew and Ted.

**Janice L. Rea, M.D., '85,** is practicing pediatric emergency medicine at Scottish Rite Children's Medical Center in Atlanta. She and her husband, David B. Gehle, celebrated the birth of their son, Daniel, last December. They reside in Lawrenceville, GA.

## 90s

**Lisle A. Eaton Jr., M.D. '91,** has been elected a fellow of the College of American Pathologists, a national medical specialty society of physicians certified by the American Board of Pathology. Eaton, who completed a five-year residency in pathology at UNC, is board-certified in anatomic and clinical pathology. He is a pathologist at Maplewood Pathology, PC, St. Peters Hospital in Albany, NY.

**Tommy Mason, M.D., '91,** is chief resident in emergency medicine at Bowman Gray School of Medicine, and is planning a career in academic emergency medicine in North Carolina. He and his wife, Dianna, recently has a second child. They live in Pfafftown.

**Fred and Margaret Weeks, M.D., '91,** proudly announce the birth of a daughter, Kathryn Berry Weeks, March 21, 1993. Fred is an internal medicine resident and Margaret is a radiology resident at a hospital in Gainesville, FL.

Mrs. Helen Heusner, wife of the late A. Price Heusner, M.D., died in March. Dr. Heusner served as professor in the UNC School of Medicine departments of Surgery and Anatomy, respectively, until his death in 1963. The Heusner Pupil Award was established in his honor in 1964. A special faculty committee selects the recipient, "a member of the rising fourth-year class who shall show a great capacity to grasp the principles of science, to heal the sick, to comfort the troubled, and to be humble before God."

# President's Letter

On Sunday, May 16, a singular and rewarding experience awaited me as I stood on the stage of Memorial Hall with other members of the medical faculty at the UNC School of Medicine's graduation ceremony. As your alumni president, it was my pleasant task to present each graduate with an alumni certificate — acknowledging him or her as a full-fledged member of our association. I was the final "presenter;" each graduate had been recognized, called on stage, "hooded" with our traditional green satin hood, and given his or her diploma by Dean Bondurant. As each new doctor left the stage, I handed out the alumni certificate. When I did so, I said, "Congratulations, Dr. . . ." First, a look of surprise, then quick realization, and, finally, unabashed happiness transformed each face. They were now officially, truly, forever and ever — medical doctors — and I was the lucky one privileged to first address them as such!

I wish each of you could have shared those moments with me, to have seen for yourselves the exuberant enthusiasm in those eyes. How proud you would have been of our fine UNC School of Medicine. But, in a way, you were there: Your alumni financial support has made possible many programs and scholarships which helped support these new physicians during their four years of medical school. We have recently been able to increase scholarship stipends, thanks to your generosity.

In these uncertain times for the future of medicine and health care, we need your input as never before. We need your presence as well, so you can see for yourself the fascinating growth of the UNC School of Medicine/UNC Hospitals complex and help determine how your alumni gifts can be most effectively utilized.

Please join us for the Fall Medical Alumni Meeting, October 29-30, 1993, which will be highlighted by a CME symposium on lung cancer. I look forward to the coming year and to seeing many of you in Chapel Hill in October.

Mary Susan K. Fulghum

*Mary Susan K. Fulghum, M.D.*

# CME/Alumni Calendar

## Medical Alumni Activities

| | | |
|---|---|---|
| October 29-30 | Fall Medical Alumni Weekend | Chapel Hill |
| | **Continuing Education** | |
| September 10 | Hypertension In Blacks | Chapel Hill |
| September 20-24 | 6th Annual N.C. Transport Institute | Chapel Hill |
| September 30-Oct. 2 | Ross Society Annual Meeting | Chapel Hill |
| October 6-7 | AIDS Tutorial | Chapel Hill |
| October 8 | Sexually Transmitted Diseases | Chapel Hill |
| October 15-16 | Growth, Stature and Adaptation: An International Symposium on the Behavioral, Social & Cognitive Aspects of Growth Delay | Chapel Hill |
| October 16 | Mammography Quality Control | Asheville |
| October 22-23 | Linking Health and Education Services for Adolescents | Chapel Hill |
| October 29 | 5th Annual Clinical Cancer Symposium Challenges in the Prevention and Treatment of Bronchogenic Carcinoma | Chapel Hill |
| October 29-31 | Teaching Internal Medicine Symposium | RTP |
| November 2-6 | Internal Sympsoium on Immunobiology of Hemophilia Therapy | Chapel Hill |
| November 4-5 | AIDS Tutorial | Chapel Hill |
| November 5-6 | Vascular Surgery Conference | Chapel Hill |
| November 12 | Current Topics in Gastroenterology for the Specialist and General Physician | Chapel Hill |
| November 12-13 | Denny Society Annual Meeting | Chapel Hill |
| November 13-14 | George Ham Psychiatry Society Meeting | Chapel Hill |

For more information about CME courses or alumni activities, contact the Office of Continuing Medical Education and Alumni Affairs, School of Medicine, 231 MacNider Building, UNC, Chapel Hill, NC 27599, or call 1-800-862-6264.

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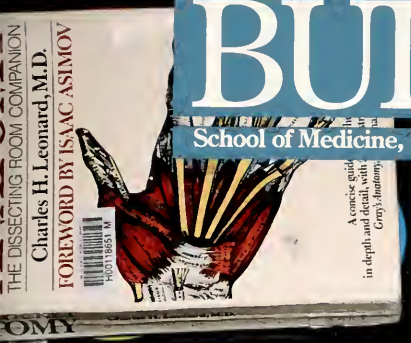
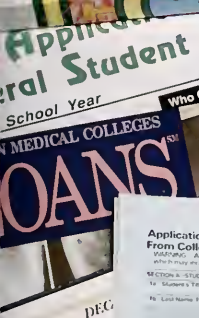
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
BICENTENNIAL

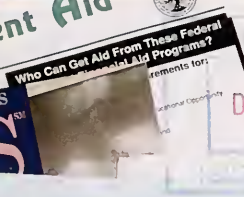
December 1993

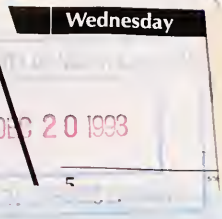
# Medical Alumni BULLETIN

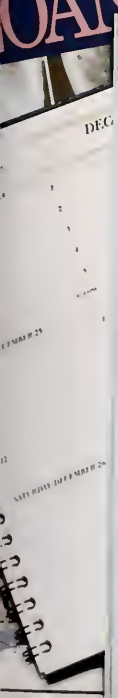
School of Medicine, University of North Carolina at Chapel Hill

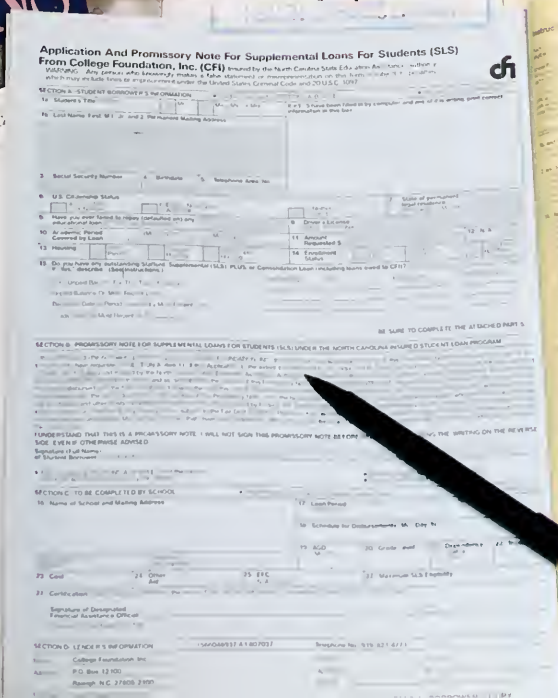

THE DISSECTING ROOM COMPANION
Charles H. Leonard, M.D.
FOREWORD BY ISAAC ASIMOV
A concise guide in depth and detail with Gray's Anatomy

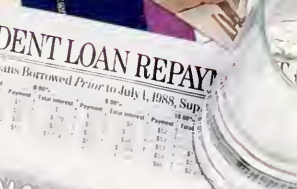


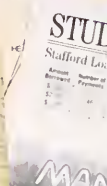





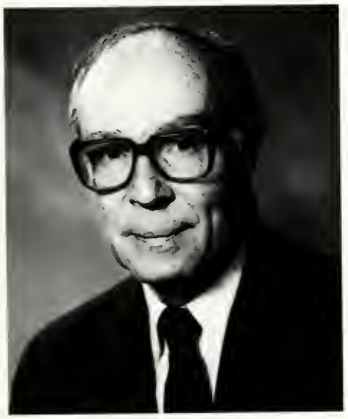


## Easing The Financial Aid Headache

Page 2

# Dean's Page



It is quite rare to celebrate the bicentennial anniversary of a prototype. The university's Bicentennial celebration, now under way and continuing, is such an occasion. Two centuries of magnificent contribution by the University of North Carolina to the lives of the people of the state and nation have helped to shape the culture, the economy and the society.

The two-hundredth birthday party has begun with an elegant academic convocation under the Davie Poplar and a reenactment of the laying of the cornerstone of Old East. The North Carolina Senate and House of Representatives met in joint session in Gerrard Hall on October 12, 1993, to adopt resolutions of appreciation to the university for its service to the state. President William Clinton and others spoke at a gala academic convocation that filled Kenan Stadium, and composer/alumnus Richard Adler's symphonic suite commemorating the bicentennial of the university had its world premiere before a distinguished audience in Memorial Hall. It has been quite a beginning of the birthday party, and there is much more to come, scores of events and celebrations across the state. The School of Medicine will be involved in many of these.

The celebrations draw their attraction from the notable achievements of the past 200 years and the celebrations themselves will attract attention to the great potential of the university to enrich individual lives and our society in the years ahead.

It is also a time to give focus to the continuing process of evolution of the university, the School of Medicine, and the relation between the two.

Higher education in the United States and, indeed, the world is in a period of transition. Most obvious are the powerful changes in our capacity to generate, store, manipulate, transmit and present knowledge. Universities are struggling to adapt to new realities of information management. In addition, educational needs have changed since a lifetime of learning is now necessary for all but the most limited of jobs. The fact that more than 50 percent of the formal post-high-school educational programs in this country are based in industry rather than in universities is evidence that our universities are not the predominant source of continuing education today. I believe that there is need for a clear formulation of the role of higher education in our society or at least an explicit analysis and design of the role of the university in the entire continuum of education from Head Start through adult continuing education.

The concept that the function of a medical school is to equip its graduates for a lifetime of learning has been fundamental to medical education for decades. On the other hand, there are substantial mismatches between the educational programs of our medical schools and the anticipated needs of the health care providers whom we educate. In medical schools and in the university, the evolution of curriculum content appropriate to the future needs of the graduates is the great and, perhaps, ultimate challenge.

The university and the medical school share the need to apply modern technologies of information management in the educational process. These technologies are not inexpensive, and there are real economies of scale. The need of both the university and the medical school to develop and apply these technologies is a strengthening bond between the university and the medical school. Some universities are moving more aggressively than others into continuing education over a lifetime and as universities move into this area, the bond between universities and medical schools will also be strengthened.

On the other hand, just as cost containment is a powerful driving force for health care reform, cost containment in medical education is likely to be a powerful driving force as our ability to cost-transfer from medical practice and medical research into the support of medical education becomes increasingly limited because of regulation of both practice and research. Medical schools will be under considerable pressure to reduce the cost of their educational product, and this force will put strain on the relationship between the university and the medical school.

There are also powerful forces driving medical education toward training as differentiated from education. The need to standardize medical practice enforced by guidelines, PROs, consensus panels, "productivity" measures and fear of liability all drive toward a level of practice that can be best communicated by training rather than education. Of course, this is offset by renewed emphasis on humanistic elements of health care and attention to the relationship between physicians and patients.

One part of the celebration of the two-hundredth anniversary of the university can be an opportunity to re-examine the purposes and processes of the university and those of the medical school to adapt to changing needs and to assure consciously a birthday present of informed mutual support that will propel both the university and the medical school into the university's third century with high likelihood of fulfillment of the great promise of the two.

Stuart Bondurant

*Stuart Bondurant, Dean*

# *Medical Alumni* BULLETIN

**School of Medicine, University of North Carolina at Chapel Hill**



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## Contents

### Cover Story


Take One FAFSA and Call Me in the Morning ..... 2
*(Cover photo by Will Owens)*


### Features


Stuart Bondurant on AAMC's Role in Reshaping America's Health Care System ..... 4

Dr. Annie: Medicine Has Been My Life ..... 8

The 'Blythe' Spirit Continues at UNC ..... 10

UNC Pediatrics: Three Eras of Leadership ..... 12

Dr. Christopher Fordham, Trust and Ethics in Medical Care
A Report from the Royal Society of Medicine ..... 14


### Departments


Dean's Page ..... Inside Front Cover

Development Notes ..... 15

News Briefs ..... 17

Faculty Notes ..... 21

Class Notes ..... 31

President's Letter ..... Inside Back Cover

Alumni/CME Calendar ..... Back Cover

# Take One FAFSA and Call Me in the Morning

**By Val Lauder**

Forget *Gray's Anatomy*. First comes FAFSA (Free Application for Federal Student Aid).

Introduction to Medicine? After FAT (Financial Aid Transcript).

Biochemistry? After SAR (Student Aid Report).

It is a given that medical school is difficult. For the majority of students, there's an added hurdle—paying for it.

The School of Medicine of the University of North Carolina at Chapel Hill has for years worked to help students meet their financial as well as scholastic needs. Yet even with a financial aid office and increasing numbers of scholarships, it's a daunting process.

Success may sometimes seem a bit like the comedian's droll comment that the light at the end of the tunnel may well be an oncoming train. Statistics show that students emerging from medical school each year do so with a load of debt higher than that of students the year before.

In 1984, the average was $15,045. In 1989, it was $19,716.

"Our 1992 graduates," said Clare G. Aselin, financial aid officer in Student Affairs, "emerged with just under $25,000 average indebtedness. That's up."

But it's low compared to that of most medical school students nationally.

"The cost of education at Carolina is about as low as it gets in medical schools," said Aselin. "Our students' average indebtedness for 1992 was lower than the cost of tuition for a single year at Georgetown."

Still, 71.7 percent of the 660 students in the UNC School of Medicine receive aid. Many of the remaining 28 percent receive other help; a Fullerton Scholarship, for example, has a $15,000 grant that well covers the cost of education at Carolina. The school also has students on armed services scholarships.

Financial aid is available in three basic categories:

- Scholarships or awards, which do not need to be repaid.
- Loans, such as the federally subsidized Stafford Loans, on which the interest is paid while the student is in school. (The amount was recently raised from $7,500 to $8,500 maximum.)
- Loans, such as the Supplemental Loan for Students (SLS), on which interest begins to accrue from the time of dispersal.

Financial aid is so important that applicants who are interviewed for admission also attend a financial aid presentation that stresses the application procedure and importance of applying early. Although the financial aid package is not awarded until a student has been admitted, it's too late then to start the paperwork and do the evaluations.

The school's Student Aid Annual Report for the 1992-1993 year, submitted by Cheryl F. McCartney, M.D., chair, Student Aid Committee, and associate dean for Student Affairs, showed 402 students receiving a total of $982,099 in scholarships and 430 students receiving a total of $2,801,986 in loans.

"Frankly, we don't have enough money here at the School of Medicine to meet all of the students' needs," said Aselin. "So most of our students turn to some kind of loan program. And that's one of our main concerns, how much debt our students are racking up."

The number of need-based scholarships, as opposed to non-need based scholarships, in 1986 was $576,280 to $216,632—nearly a 3-to-1 ratio. By 1989 the need-based scholarships had risen to $804,126 and the non-need based scholarships had dropped to $173,672—nearly a 5-to-1 ratio.

"The School of Medicine also offers scholarships," said Aselin. "The total amount has been somewhere around $400,000. For a couple of years it was 15 percent of the total cost of their education, which last year was about $1,400 per student. This year, we've got about the same amount of money, but we have more eligible students. This year, it will be about 11 percent of their total cost, about $1,155 for our first- and second-year students."

Although the school's financial-aid packages are usually awarded in May or June, this year none had been awarded by mid-July. The major cause was Congressional changes in federal aid programs enacted in 1992. A key change was that students who qualify no longer have to contribute a minimum of $1,200; that amount now has to come from other sources. Another was that students in professional schools are now considered "independent" of their families for purposes of financial aid; that meant a larger number applied because they were now eligible. And yet another change eliminated the processing fee for financial aid applications. Given all the changes at once, the system needed time to play catch-up.

The fact that many students no longer must contribute $1,200 to their medical education "makes their need larger," Aselin said, "and puts more pressure on financial aid administrators to come up with dollars to meet the student needs."

"First we establish what the entire cost of education would be for a given term," Aselin said. "Tuition and fees. Books and supplies. The living expenses. Any other school-related expense, such as our school syllabus."

Financial aid may increase to cover costs but the total aid package may not exceed

stipulated sum. Therefore, Aselin not only puts together a financial-aid package for each student, she provides sample budgets for each of the four years.

"For some students," Aselin said, "it's the first time they've ever had to deal with a budget. But the maximum amount of the financial-aid package—whether from scholarships, loans, or other sources—is just a little over $11,000 each year."

At UNC, medical students are encouraged NOT to get or hold jobs.

"We have some professors who are adamant that students should not work while in medical school," Aselin said. "One adviser says that's the first question he asks when a student shows up in academic difficulty."

To help students, the Alumni Loyalty Fund, the annual-giving fund of the medical school alumni, offers merit awards, which are presented based on highest academic achievement. Two second-year and two third-year students may qualify for this award based on their first- and second-year achievements. All rising fourth-year students who receive honors in all courses during their third year qualify for the award.

Sixteen students currently are receiving merit awards. Last year, the sum was $1,000 per student. This year it will be $2,500.

The Alumni Affairs office under the direction of William E. Easterling Jr., M.D., associate dean, is setting up new scholarships. In 1993-94, four-year scholarships for five incoming students will offer a maximum of $2,500, trying to meet the full cost of tuition.

Another new program will establish nine one-year scholarships for rising second-, third- and fourth-year students. These will be given to students with demonstrated interest in pursuing generalist careers. Additionally, a scholarship is presented annually to a medical allied health professions student recommended by the department chair.

Whatever the source of financial aid and support, the gratitude of students is expressed again and again in letters.

"I am sure you know the plight of the typical medical student, with growing debt-load every year and fluctuating certainty as to whether this is the right career path," wrote one scholarship recipient. "It was a comforting feeling, at least, that because of scholarships such as yours, that the former worry was kept to a minimum. As you already know, health care has been a hot topic in political and social discussions lately, and there have been many stories about medical students choosing their specialties based on monetary concerns (about their debt load). I can truly say that my decision to enter the field of surgery was solely based on my true gut feelings about what I wanted to do with my life, and not based on my worries about my debt-load. And generous people such as you have made that possible. I truly thank you."

Another recipient of a scholarship said, "One of the first lessons I learned in medical school was how quickly the cost of tuition and fees, living expenses, and other financial needs could add up to immense amounts. I have had to rely on financial support throughout my two years.

"One of the most frightening moments was signing the loan agreement from the Financial Aid office. Fortunately, certain people have been generous enough to supply scholarships, such as the one I am receiving, to ease the burden of the ever increasing debt. This has relieved some of the stress involved in the financial commitment to my becoming a doctor, and it is greatly appreciated."

The Financial Aid office hopes to offer additional help, to become a financial services office. "A place," as Aselin put it, "where students can come for help."

As the cost of medical school, along with other costs, rise—and as more non-traditional students are admitted to medical school, entering with families or aging parents—financial aid and the services provided by the Financial Aid office, will become ever more important.

Not only to the students, but to the school.

This year, the UNC medical school will admit 160 students.

Without financial aid, the school could probably still admit 160 students. But as everyone concerned recognizes clearly, they might not be the same 160 students—the 160 the school believes will one day be outstanding physicians. □

Photo by Jay Mangum

*Clare G. Aselin, UNC School of Medicine financial aid officer, reviews a financial aid form with a medical student.*

**First Year**

*August to May*

| | |
|---|---|
| Tuition and Fees' | |
| Tuition | $1,764 |
| UNC Student Fees | 466 |
| Books and Supplies | |
| Texts | 550 |
| Supplies | 130 |
| Room and Board | |
| Rent (9 mos.@ $250 per) | 2,250 |
| Food (9 mos. @ $200 per) | 1,800 |
| Utilities (9 mos. @ $120 per) | 1,080 |
| Transportation | |
| All routes bus pass | 107 |
| Other | 10 |
| Miscellaneous | |
| Personal | 1,480 |
| Instruments | 350 |
| Syllabus | 200 |
| Health Insurance | 615 |
| Disability Insurance | 141 |
| TB test (annual) | 25 |
| Vaccines | |
| Hepatitis B | 150 |
| Orientation Fee | 10 |
| ID Fee | 10 |
| **TOTAL** | **$11,138** |

Figures for 1992-93 used. Anticipate a 10% rise in tuition each year. FA budgets will keep pace with a rise in tuition, but will generally always lag behind rises in costs of living. Be prepared to meet a portion of your costs each year

*A first-year medical student will need more than $11,000 to cover tuition, books and other expenses. While the second-year budget is very similar to the first, third- and fourth-year budgets include costs such as lab coats and transportation for rotations.*

# Stuart Bondurant on AAMC's Role in Reshaping America's Health Care System

***Editor's Note:*** *Stuart Bondurant, M.D., dean of the School of Medicine since 1979, took office as chair of the Association of American Medical Colleges in November. In that office, he will help lead an organization that represents the 126 accredited United States medical schools, 16 accredited Canadian medical schools, and more than 400 major teaching hospitals, including 70 Veterans Administration medical centers. In the following interview, Bondurant discusses what he sees as major activities of the AAMC and his role as a leader of the organization.*

**BULLETIN: First, could you talk about the AAMC and its mission as well as your role as chair?**

The AAMC represents American and Canadian medical schools and related organizations. The organization is made up of three councils, one of which is the Council of Deans, composed of the deans of the medical schools. Another is the Council of Teaching Hospitals, and that consists of approximately 400 teaching hospitals in the country. A third council is the Council of Academic Societies. These are the academic biomedical societies, whose members include people from the various basic and clinical sciences disciplines. Representatives from all of these constituencies participate in the governance of the AAMC. The AAMC is an organization with about 200 employees and an annual budget of $20 million. This role of chair is one of leadership in governance; the work of helping set policy. The executive management of the organization is the responsibility of the full-time president of the AAMC. That individual is appointed by and reports to the Executive Council.

"There still aren't enough primary care doctors. My own view is that the problem will continue to exist until strong steps are taken to make primary care practice more attractive."

In addition to these groups, there is an office of student representatives and resident representatives that is also part of the constituency. And then, the medical education activities are broken down further into a number of groups such as the Group on Educational Affairs, the Group on Planning, the Group on Institutional Advancement, the Group on Business Affairs, and so on.

The AAMC is responsible for the Medical College Admission Test (MCAT) and, with the American Medical Association, it is responsible for accrediting United States and Canadian medical schools. It is also involved in the accreditation of residency programs and continuing medical education.

So these and other constituencies make up the total scope of the organization. My responsibility will be to chair the governing body and to advocate for the views of the constituencies.

**BULLETIN: What are some of the issues facing the organization?**

Well, first there is the total package of health care reform, which includes a lot of different things. For example, the financing of health care and the organization of the health care system. These matters have profound importance for the medical schools' ability to teach the doctors who will work in the system that is coming. For example, our ability to work with our hospital colleagues to continue the academic functions we now have in the teaching hospital will be changed as the system moves to an emphasis on prevention, primary care and ambulatory care. The financing and organization of the health care system are two important items facing the AAMC. Linked to the financing is the issue of cost containment or cost control.

Then there is medical education. It is a fact that medical education is the most expensive form of education that has ever been invented. And so the costs of the educational process itself are increasingly coming to be matters of concern. The same applies to research; the cost of research as a cost-saving as well as a life-saving enterprise is a matter of concern.

**BULLETIN: All of these issues are under the heading of health care reform?**

Well, they are to some extent, but many

"It is a fact that in the last year, there have been primary care physicians in North Carolina who went bankrupt."

of these issues have been discussed and debated for years. Take research for example: Most of the nation's biomedical research takes place in the medical schools. That is not true in every country, but it is true in America. As a result, the issues of research and of health care reform are linked in ways that differ from other nations. For example, Sen. [Thomas] Harkin, [D-Iowa], has recommended that there be a $5 surcharge on the health insurance policies of every person in the country and that the money be put into a separate fund to pay for medical research on the premise that research will lower the cost of health care. The question of whether that is a good thing to do or a bad thing is very much of interest to the Association of American Medical Colleges. The Association represents the best expertise on medical research in the country and should make important contributions to that debate.

**BULLETIN: Does the Association have objectives with respect to the representation of minorities and women in the medical profession?**

The AAMC has been deeply concerned for many years about the fact that the diversity of our American population is not adequately reflected in the medical profession, both in terms of the presence of women and also minorities. And so the AAMC has been pressing hard at both the federal level and on individual institutions to improve this situation. Specifically, the AAMC has launched what it calls its 3,000 by 2000 Program. This effort seeks to attract and retain 3,000 individuals from underrepresented minorities into the medical schools' entering classes each year by the year 2000. We have worked very hard and very productively on this issue at UNC-Chapel Hill. It will continue as one of my priorities at the AAMC. Similarly, the AAMC has worked to assure full access of women to careers in medicine.

**BULLETIN: Does the AAMC have a position on the matter of the cost of medical education to medical students?**

The cost for students is very much a key issue. Student financial aid, both from federal and state sources, is inadequate. We need to assure that our pool of future physicians is chosen on the basis of ability to be a good doctor rather than on the depth of the applicant's pocketbook. Often, students must assume crushing debt while they're still in the educational pipeline—debt that often takes years to repay after they're in practice. These things must be changed. To do that, we need a better system for student financial aid.

**BULLETIN: What role or what leadership do you see the AAMC taking in addressing the shortage of primary care physicians?**

Thirty years ago, the AAMC recognized the existence of a shortage of primary care physicians and that the shortage was growing. But because of the diversity of the schools, not all the schools have been equally intense about the need for primary care physicians. Some schools have been founded primarily to create more primary care physicians, and other schools saw their mission as being quite different than that, focusing their missions on research and the training of specialists.

But the AAMC's role is to try to make, insofar as is possible, a coherent national posture in medical education on the issue of primary care. Over the years, it has increasingly strengthened its endorsement and its position in support of the education of more primary care physicians. About a year ago, there was a very extensive, thorough, careful discussion on whether or not the AAMC should advocate a national goal of having at least 50 percent of medical graduates going into primary care.

After all that debate, the AAMC in fact did adopt this as an official policy. Now, the AAMC will work with all medical schools, with Congress and with any agency that can help to further that goal. The organization will also work with the medical schools to strengthen their instructional programs in primary care. In short, we'll do anything at hand to achieve the goal.

**BULLETIN: Could you discuss some of the tactics that are likely to be employed in that respect?**

The first one is a serious study of the criteria that admissions committees can use to judge which potential students are likely to go into primary care careers. The AAMC can't dictate admissions policies nor should it. Those are prerogatives of an individual university or school. The AAMC can commission studies and provide information that is useful to the schools in determining which of their applicants for their medical school classes are likely to pursue primary care careers. So, the AAMC will be working with the admissions people on that. It will also be working with the people responsible for curricula in the various schools. It will seek to help strengthen the curricular content that offers experience to the students in primary care.

The Association will be recommending that there be some influence on the total number of primary care training opportunities in the country in relation to the total number of other specialty training opportunities in the country. In this way, control of the mix between primary care providers and specialists will be influenced more than it has been in the past.

I want to make the point that nobody is advocating that all physicians be in primary care. The AAMC position is that at least 50 percent should be in primary care. The other side of that coin is that up to 50 percent should be in other specialties. There are shortages in several of the other specialties that need attention right now—psychiatrists and general surgeons chief among them. So in emphasizing primary care, we can't turn away from the other 50 percent.

**BULLETIN: So you don't envision that there would be more primary care residency slots and fewer specialist slots?**

"We need to assure that our pool of future physicians is chosen on the basis of ability to be a good doctor rather than

on the depth of the applicant's pocketbook."

I do envision just that. There will still be the need to assure high-quality training for the 45 to 50 percent of specialist physicians.

**BULLETIN: Is that kind of constriction within the realm of influence of the AAMC and the medical schools?**

It is not within the authority of the AAMC, but it is within the realm of influence. In my view, federal action will be necessary to control the specialty distribution of residencies. So far as the AAMC can influence federal policy, that's where the AAMC's emphasis would be given.

**BULLETIN: Are there additional regulatory actions that might appropriately influence the supply of primary care physicians? Should additional incentives be considered?**

Other than regulating the number of specialty training positions and possibly enhancing compensation of primary care physicians, I don't think so. There are many incentives: loan programs, scholarship programs, scholarship programs for people to commit to primary care in the rural or disadvantaged areas, federal and state loan forgiveness programs, and other incentives that have been used in the past, including a national health service program through which people pay back medical school scholarships by serving a period of time in an underserved area. This one worked fairly extensively in the 1970s but was nearly abolished during the 1980s. It's now going to be re-expanding.

**BULLETIN: But on the whole, they really haven't solved the problem, have they?**

The problem still exists. There still aren't enough primary care doctors. My own view is that the problem will continue to exist until strong steps are taken to make primary care practice more attractive. None of the scholarships, loans, and other incentives are powerful enough to persuade someone to commit to a career in something they don't want to do. So I think until the characteristics of personal and professional life in primary care practice are made more attractive, the problem won't be solved. That includes, for example, paying primary care physicians a salary that is commensurate with the salaries earned in other kinds of specialties.

Right now, for example, compensation differentials between specialists and primary care physicians is in the range of five to seven to one. That is to say, other specialists make up to five to seven times more than a primary care physician. It is a fact that in the last year, there have been primary care physicians in North Carolina who went bankrupt. And as long as primary care physicians are that grossly underpaid, I don't think we will solve the problem satisfactorily no matter how hard we try. Incidentally, in recent months, compensation of primary care physicians has increased in some settings.

**BULLETIN: Can you feel optimistic that inner city practice sites and rural practices will ever be attractive to physicians?**

It is a legitimate question whether or not there is a large enough pool of people who could be selected to go to medical school who would want to provide care in these areas. There are such people. The question is whether there are enough of them.

"...the AAMC's role is to try to make, insofar as

is possible, a coherent national posture in medical education on the issue of primary care."

I think that there is probably not a sufficient pool under present practice arrangements. But I can conceive of improved practice arrangements in addition to better pay that could make a difference. Improving lifestyle factors could help. That is, to make them less lonely. Systematic steps could be taken to support them professionally and personally by incorporating them in groups. The advantages of that, for example, are simple but important. If they were incorporated in groups, they could then have time off, they can have professional interactions with colleagues, and the matter of professional isolation could be addressed.

There needs to be more non-physician primary care providers, physician assistants and primary care nurses who work in concert with physician primary care providers as part of the system. If they are part of the system, they can be mutually supportive. This can make primary care more attractive as a career path for physicians and the other providers.

**BULLETIN: May we talk now about future medical students? Will admissions criteria be changing? Will the schools be looking for different undergraduate, personal and professional characteristics in their applicants?**

The answer to all these, I think, is yes. I think there has been an evolution in the characteristics that admitting committees have looked for just as there has been an evolution in the nature of the practice in medicine and in the nature of the relationship between physicians and patients.

Over the last 30 or 40 years, for example, I think that medicine has moved from the independence and autonomy of the solo practice of the 1950s to our current emphasis on selecting students who will work as part of health care teams.

I think medicine will continue to be a profession to which young people will be strongly attracted. The reason I'm optimistic, in spite of all hassle factors and everything else, is that there is still no other circumstance in which the relationship between two human beings is more intimate and committed than is the relationship between patient and physician. Regardless of the format of payment or the organizational arrangements, those relationships are immensely rewarding. Young people experience these relationships as patients first, and this leads them to anticipate that they will enjoy being a party to that relationship as a physician.

I don't mean that there aren't a lot of other factors that determine the number of applicants to medical schools, but I am optimistic that the profession will continue to be attractive and rewarding as a career and that we will not lack good people who want to become doctors.

**BULLETIN: Finally, would you think now about what the situation is likely to be when your term as chair of the AAMC is concluded? If that were today, and you were looking back, do you have a feeling about what one or two main contributions you might have made during your tenure?**

This is a critical time for health care reform. The AAMC is a unique voice in health care reform. One of the challenges of this window of time, which includes, but is not limited to, this year, is that the AAMC successfully introduce its knowledge and competence into the dialogue that will shape our country's health care system. I hope my leadership will make a significant contribution to that process. □

# Dr. Annie: 'Medicine Has Been My Life'

**By Veronica A. Gontram**

Annie Louise Wilkerson, M.D., fell in love with medicine at the age of 2, when her father, Charles B. Wilkerson Sr., M.D. '06, took her on his rounds in Apex in a horse and buggy.

At 79 she's still smitten, and despite her recent retirement is busier than ever visiting sick patients, family and friends and consulting by telephone whenever she has the chance.

"Dr. Annie," as she is affectionately referred to by her patients, retired June 30 from Wilkerson Obstetrics & Gynecology, largely due to knee and back problems brought on by years of standing. But retirement has been tough for Wilkerson, who says her happiest moments are when she's doing something medical or helping someone. "I've spent my life *doing* for people, and I get the most pleasure out of that," she said.

She inherited her altruistic attitude from her father, who practiced general medicine and obstetrics in Apex and Raleigh. Wilkerson's family moved to Raleigh when she was 6 years old. She graduated from Hugh Morson High and attended Duke University for two years, then transferred to the University of North Carolina at Chapel Hill as a junior. (At that time, females were not granted admission to UNC until their junior year.) She earned a bachelor's degree in medicine in 1936 and her M.D. from the Medical College of Virginia in 1938.

Prejudices against female professionals didn't make schooling easy for Wilkerson. "When I came along, everyone told you that women had no place in medicine, that you would go in there and take the place of a man, then go off and marry and never practice," she said. "And you got that at every turn."

An aggressive student, Wilkerson told her male colleagues that she planned to practice medicine. And that is precisely what she has done for 55 years.

"She certainly overcame the obstacles," said Thomas Worth, M.D. '34. "Some professors were dead set against female doctors and gave Annie Louise a terrible time, but she was confident enough to brush it aside and has done a great job."

Despite receiving a hard time from professors, Wilkerson, one of four women in her class at UNC and the Medical College of Virginia, thoroughly enjoyed medical school. "My classmates were wonderful," she said. "They told jokes and I laughed. I figured if you put yourself in a man's world, you're one of them. You have to be."

Wilkerson returned to Raleigh in 1938 to become the first woman intern and resident at Rex Hospital. She then joined her father's practice, giving up marriage in the process.

"Three men proposed to me during medical school but wanted me to head home with them to practice," said Wilkerson. "I knew I was coming home to practice with my dad and wasn't about to give up what I had planned to spend my life doing. And that was fine."

Married instead to medicine, Wilkerson practiced with her dad until his death in 1944. While looking after his patients during his illness, she managed also to work round-the-clock shifts at Rex Hospital during World War II.

"I worked obstetrics during the day and pediatrics at night," she said. "It was almost a nightmare, but I loved it."

When things settled down after the war, Wilkerson and her two brothers, Charles and Louis, bought land in Raleigh for their own private practice. She moved into the new building in April of 1950 and was joined in July by Charles, an internist. Louis, an obstetrician and gynecologist, joined the practice in 1956.

Wilkerson's two sisters didn't go into medicine, although one sister, Josephine Wilkerson Kirk, considered it before deciding on social work. Kirk's daughter, Mary Susan Kirk Fulghum, joined Annie Louise's practice in 1977 to carry on the unique brand of Wilkerson family medicine.

Fulghum, who now serves as the first female president of UNC's Medical Alumni Association, said Wilkerson has been a wonderful influence on her over the years.

"I remember Annie Louise calling me while I was in medical school to ask questions regarding patients and to request journal articles," Fulghum said. "She always tried so hard to keep up with new surgeries and new trends."

Wilkerson's energy has always amazed Fulghum. Despite her full work load, she always made time for community organizations. "She was a stickler for medical society meetings and felt one should be an active member," Fulghum said. "Annie Louise encouraged her younger partners in particular to become active members in society organizations and continuing medical education activities."

An excellent role model, Wilkerson took

Photo by Greg Hatem

*Annie Louise Wilkerson, M.D., relaxes at AWL's Haven, a 155-acre farm she has called home since 1953.*

an active role in civic and charitable organizations, as well as women's club activities. She has hosted and attended numerous CME conferences and has been an active member of the Edenton Street United Methodist Church in Raleigh.

"Annie Louise has always believed that people should use their talents and skills to their fullest," Fulghum said. "She set very high standards for the partners in her practice, and was honest with them when she felt they were falling short."

Fulghum said the partners respected Wilkerson for her candor and sensitivity, as did her patients. "Dr. Annie was always very honest with her patients—compassionately honest," Fulghum said. "She was always available, dependable and firm, and as a result, she was very dear to them."

As one might expect, patients were not happy to hear about Wilkerson's retirement. "We practically had to hire another person to answer all the calls that came in," Fulghum said. "Cards poured in as well."

Wilkerson said she hated to disappoint her patients and would still be practicing if it weren't for her medical problems. "From the waist up, I'm fine. But I can't trust the rest," she said. "And that's not fair to your patients, partners or employees, so I decided it was finally time.

"I did my damnedest to go through everything and see patients for a last time," she said. "I made sure they had a new doctor and an appointment and told them, 'They're not Dr. Annie, but they'll look after you.'"

Fulghum said Wilkerson tried to match her patients' personalities with the personalities of other doctors in her practice. And now the partners, all of whom have received their medical degree or residency training at the UNC-CH School of Medicine, are trying to carry on to the best of their abilities. "We hope to treat her patients as she would want them to be treated," Fulghum said. "But there's no doubt that she'll always be their doctor. We'll just be her backup.

"Dr. Annie will never be out of the loop," her niece added. "In fact, I can't imagine a time when she'll stop dropping by the office for a visit. I hope she never does. The office runs better when she's here."

And that suits "Dr. Annie" just fine. "I love going by to see my children and grandchildren," she said, referring to the more than 8,000 babies that she has delivered, many of whom have been her patients over the years. "As much as I should rest my feet and relax a little, I miss not seeing my patients and looking after them.

"Medicine has been my life," she said. "It has always come first, and I guess it always will." □

# The 'Blythe' Spirit Continues at UNC

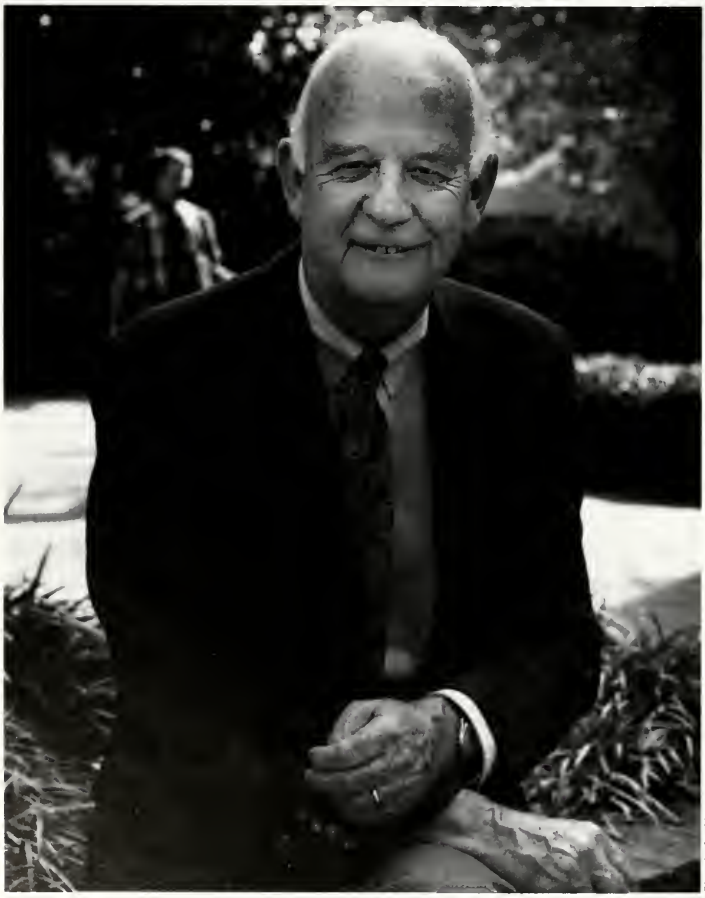


Photo by Jay Mauiquin

*William B. Blythe, M.D.*

**By Anita Murphy**

After two decades of outstanding leadership, William B. Blythe, M.D., Marion Covington Distinguished Professor of Medicine, has stepped aside as chief of the Division of Nephrology at UNC School of Medicine. Even so, his more than 45-year relationship with the university and the medical school hasn't ended. Blythe continues to teach students and housestaff, and work with patients. He also plans to devote more time to his writing.

"I've been here a long time," Blythe said, "but it doesn't seem very long. I've had a great time, I've worked with a lot of great people and I've enjoyed it."

Blythe first came to Chapel Hill in 1945 as an undergraduate student at the university, and except for two periods of absolute necessity, he has never left. After completing studies in the UNC two-year medical program in 1951, he went to Washington University School of Medicine in St. Louis to complete his medical degree. He returned in 1953 for a straight medical internship and continued his residency training here until 1955, when military service took him to Walter Reed Army Institute of Research in Washington, D.C., for two years.

He has been a part of nearly every stage in the history of the four-year medical school and the university hospital.

It is precisely that long personal history with the institution and his keen interest in the history of the institution itself that give Blythe a unique perspective, according to his colleagues.

"He, more so than most people, is really committed personally to the institution," said P. Frederick Sparling, M.D., chair of

the UNC Department of Medicine. "I think that he has the long view and can see beyond the needs of the moment. He brings perspective to the decisions that affect us now and later, and it makes his advice particularly important."

Wilson nephrologist Joseph D. Russell, M.D., a 1969 graduate of the UNC School of Medicine and the first nephrology fellow to study under Blythe, said: "All the founders of the school, all those who have been there, owe him a great debt because he has helped build on what they did, kept it going and helped carry it forward. Everyone who goes through the medical school in the future will be blessed by what he's done."

In his early years at the School of Medicine, Blythe was a bench scientist, exploring, and sometimes unlocking, the mysteries of the kidneys. His work (along with other researchers such as L.G. Welt, M.D.) led to the important determination that a factor outside the kidney controlled the excretion of fluid from the kidneys. Later, using this knowledge, other scientists were able to identify that factor.

Arthur Finn, M.D., professor of medicine and physiology and a research scientist in the division of nephrology, is a longtime friend and colleague of Blythe. He recalled Blythe's early lab work when he was studying chicken urine. "I remember walking by his lab up on the fourth floor, and I could look in and see him, sitting on the bench at the 'wrong' end of the chicken, collecting urine," Finn said. "That picture in my mind of him behind the chicken is one I will never forget."

After he became director of the General Clinical Research Unit in 1966, Blythe (and others) produced another landmark paper, outlining the importance of lowering the blood pressure of kidney disease patients who also are hypertensive, a practice which continues today. Blythe became chief of the Division of Nephrology in 1973.

"Dr. Blythe has been a great clinical administrative leader and supporter of the diverse faculty who are involved in inpatient and outpatient renal medicine and for those people in his division who are truly outstanding scientists," Sparling said.

"He is a wise man of considerable grace and charm. He has been a leader and spokesperson for change for the better in this institution. I am going to miss dealing with him as division chief."

Richard Walker, M.D., professor of medicine in the hematology division, and Blythe were classmates in 1945, and the two have remained close friends throughout their careers at UNC. "Bill is a very diplomatic person, and he has great skill in getting people to work together. I would say his greatest achievement has been to bring reason to cacophony, to be a sane voice in the noise of the tower of Babel," Walker said.

To all who know him, his sane and reasoned "voice" brings eloquence, and elegance, to each problem.

"Dr. Blythe is an excellent teacher, a great communicator, who helps students and housestaff understand the nuances of translating science into good medical care," said former Chancellor Christopher Fordham III, M.D. "He is a scientist who cares deeply about his patients, a scientist who can express himself with elegance. He is quite eloquent with the language, and that adds a special flavor and flair to what he does."

"Dr. Blythe is an excellent teacher, a great communicator, who helps students and housestaff understand the nuances of translating science into good medical care."

Christopher Fordham III, M. D.

His economy of words may reflect the philosophy of patient care that he has taught students and housestaff through the years. "What most impressed me about Dr. Blythe," Russell said, "was that he used a lot of wisdom in everything he did. He didn't try to see everything that he could do *to* a person; it was more important what he could do *for* a patient."

He is a firm believer in staying with the basics of medicine, such as taking a thorough medical history from the patient. "Dr. Blythe doesn't want anybody to order labs," said Ron Falk, M.D., another former student and fellow. "He thinks you should be able to get everything you need from a history, and he loves to catch students who have missed some 'pearl' in the history. He is a critical thinker who is able to cut to the salient bits of information."

Falk, who took over as chief of the Division of Nephrology June 30, also admires Blythe's ability to stimulate young people to become interested in medicine, and specifically nephrology. "He's always had this amazing ability to get people interested and motivated to continue," Falk said. "It's sort of funny from the perspective that when I was a student, my first month on medicine was with him. And now to be succeeding him in this job is great."

Bill Blythe leaves a powerful legacy: Thousands of patients who have known his humane care. Thousands of medical students who have a better understanding of and appreciation for the medical history. Hundreds of new physicians throughout the state and the country who serve patients with kidney disease.

But perhaps Blythe's greatest contribution is the Center for Excellence in Nephrology. The concept for the center was developed in response to changing environments for research funding and the need further strengthen the division, its faculty, its educational excellence and its network of practicing physicians.

The center will enhance the division's and the medical school's relationships among the academic world, the business world, the world of government and practicing physicians, Blythe said.

Already the center has created the Doc J. Thurston Professorship. In October, as part of the center's visiting fellows program, the first Blythe Lecture was presented by Hugh deWardener, M.D., a renowned British scientist with whom Blythe studied in the 1970s. The center also will fund a visiting physician-in-residence program and provide endowment funding for clinical and basic research.

In spite of changes and growth at the medical center, Blythe believes that it has not waivered in its outlook or its responsibilities. "It is still an unpretentious place that takes all its responsibilities seriously," he said. "One function has not atrophied at the expense of the others, nor has one grown at the expense of others; so that even though it has become a much bigger place, there is much more research going on, there is still patient care going on, there is still teaching going on. It has remained balanced."

There is no doubt that William B. Blythe, M.D., has been an important part of that balance. "In every sense, he has been a very positive influence on the institution," said Walker. "It is clearly a better place for having had him here." □

# UNC-CH Pediatrics: Three Eras of Leadership

By S. D. Williams

***Editor's Note:*** *When the UNC Department of Pediatrics celebrated its 40th anniversary this year at the Denny Society Meeting in November, three periods of leadership in UNC pediatrics were recognized—the Curnen, Denny and Boat eras. Taken from interviews and a history written by Harrie R. Chamberlin, M.D., Floyd Denny Jr., M.D., Herbert S. Harned, M.D., and Judson Van Wyk, M.D., the following is a review of the development of the UNC Department of Pediatrics from its beginnings to its current status as a world-class leader.*

## The Curnen Era

*Edward Curnen, M.D.*

When Dean Reece Berryhill, M.D., lured Edward Curnen, M.D., to Chapel Hill from Yale University in 1952, the town was still a quiet village and the UNC School of Medicine had just changed from a two- to a four-year curriculum. Curnen, hired to create a department of pediatrics, had spent his professional life in the urban Northeast, and the change must have been startling. In the countryside, many farmers still plowed with mules. Public facilities were racially segregated. There was no Research Triangle Park. And there were few pediatricians practicing in North Carolina.

A 1945 study by the American Academy of Pediatrics revealed there were only 39 private pediatricians in the state. (There were only about 5,000 pediatricians in the nation.) When Curnen arrived, six pediatricians served all of North Carolina's children east of Raleigh.

Helping to meet the state's clinical needs was only part of his task, however. To establish a strong academic program, he knew he must recruit researchers as well as teachers and clinicians. But funds were limited, and while Curnen's hiring choices were prescient, the number of full-time faculty members besides himself was only six by the time he left Chapel Hill in 1960. Unable to hire a large and diverse faculty, he recruited "renaissance" members, each of whom had a variety of talents.

"The early years are stocked with stories of stretching funds and scrambling for space," said Herbert S. Harned, M.D., professor emeritus of pediatrics. "A new faculty member might expect a salary of only $6,000 a year. Faculty salaries were supplemented from a pool created from a portion of patient fees earned elsewhere in the medical school, but this pool (and thus the supplements) grew and shrank with its own rhythm, more than once leaving a faculty member feeling a little stretched at the end of the month."

But there were young academic pediatricians wise enough to look upon the new department as a perfect opportunity for making their mark. The hiring of Judson Van Wyk, M.D., a promising young researcher in endocrinology from Johns Hopkins, is an unusual story, but seems representative of the era.

"Dr. Van Wyk, after much lobbying on his part, was invited to Chapel Hill to present a grand rounds discussion and was assigned the topic of rheumatoid arthritis," Harned said. "Only later did he reveal he knew almost nothing about the topic. He managed to steer the presentation through a series of turns to a discourse on sex determination and Turner Syndrome, on which he had done significant research. He impressed his audience so much that they overlooked the diversion, and Dr. Curnen hired him."

As a builder of a department, Curnen recruited a loyal and excellent staff. He established, among other things, a pediatric residency program that, with variations, eventually became one of the premier pediatric residencies in the country. He also created what was probably the first newborn special care nursery in existence, where infants with special problems were treated.

"He did much to establish pediatrics as a respected branch of medicine in North Carolina," Harned said. "He often traveled to various civic gatherings, eating innumerable chicken dinners, to tell the populace about the new department in Chapel Hill and to seek support. He served North Carolina well; of the first 25 pediatricians trained by the department, 20 later practiced in the state."

# The Denny Era

*Floyd Denny, M.D.*

Floyd W. Denny Jr., M.D., Alumni Distinguished Professor of Pediatrics, came from Case Western Reserve University to take over the chairmanship in 1960. He was described by one colleague as "Mr. Dynamic," and his energy led the department through remarkable growth in the 1960s and 1970s. He inherited six full-time faculty and left 47 when he stepped down in 1981. Subspecialty divisions were nonexistent in the pediatrics department in 1960, but there were a dozen by the time Denny left. And in his 21 years as head of the department, he witnessed dramatic changes not only in pediatrics but in all of medicine.

"There is absolutely no resemblance whatsoever between the patients we saw on the ward when I came and the patients we see now," Denny said. "Meningitis, pneumonia, tuberculosis, rheumatic fever: those were the common things. Now we see heart, liver, kidney and lung transplants and a variety of congenital diseases.

"In 1960 I was a strong advocate of doing all of our teaching here at the hospital. Our population was representative of children's diseases. That's not true anymore and hasn't been for quite a while. What we see are terrible, terrible diseases. A long time ago, we had to start sending our students out to other medical centers for some of their training, so they'd really see the wide range of concerns they'd have to face and understand how medicine is practiced away from the university."

Denny had the benefit of building on a firm foundation, and he made the most of it. He developed a devotion to the residents and expanded the training program greatly, drawing some of the best medical students in the country. He nurtured the research effort, fought and succeeded in securing pediatrics' position as an important department within the medical school, and established UNC-run teaching and clinical centers in Raleigh and Charlotte hospitals.

One of his most important achievements was developing, with Frank Loda, M.D., professor of community pediatrics, a postdoctoral fellowship program in community pediatrics. The fellows train in epidemiology and sociology and investigate issues such as lead toxicity, fetal alcoholism, passive smoking and child abuse. Some of the fellows have gone on to administer major public health programs, becoming "the ones who tell us what works and what doesn't in community health," Harned said.

When Denny stepped down in 1981, the department had a firmly established research, teaching and clinical base. The sense of collegiality was, if anything, stronger, and the department was acquiring the new diagnostic and treatment technologies that were revolutionizing medicine. Denny returned to research in his field of infectious diseases, and in 1985 became director of the UNC School of Medicine Program on Health Promotion and Disease Prevention. He retired November 1, 1993.

# The Boat Era

Thomas Boat, M.D., came from Case Western Reserve University to become chairman of the UNC Department of Pediatrics in 1982. A leading researcher in cystic fibrosis, he quickly established strong relations with various UNC pulmonary programs.

If Denny inherited a firm foundation, Boat inherited an established department, and his task was to support successful ongoing work as much as to create new programs. He established the department's third community training program, at Cone Memorial Hospital in Greensboro.

As an advocate for specialty training in all pediatric matters, Boat worked with the Department of Surgery to establish a special pediatric program within that department. He was also instrumental in establishing the pediatric transplant programs at UNC.

Some accomplishments of the Boat era are readily visible. He recruited Robert Wood, M.D., professor and chief of the new Division of Pediatric Pulmonary Medicine, who is recognized for his work in bronchoscopy. He also oversaw the creations of the divisions of rheumatology and critical care. Overall, faculty appointments grew from 47 in 1981 to 85 in 1993, when he left Chapel Hill for Cincinnati Children's Hospital.

"One of the things Tom did very nicely was to continue the philosophy of the Denny years," says Edward Lawson, M.D., acting pediatrics chair. "For me as a junior faculty member who came in the late 1970s, there was really no transitional phase, and I think that was very positive.

"I think the pediatrics department is one of the best in the country for keeping intact through the years the philosophy of scholarship, teaching, and patient care. We've never let one of those dominate the others," Lawson said.

*Thomas Boat, M.D.*

During its 40 years, Department of Pediatrics grants have grown from an annual total of $21,000 to more than $7 million. The faculty has expanded from one to 85, divisions from zero to 15. Not only has the number of pediatric beds grown in the hospital, but the new North Carolina Children's Hospital, Women's Hospital and support services will soon be under construction, and that, said Harned, testifies to the work of the pediatrics department and its devotion to the health of children. □

# International Medical Leaders Discuss Trust and Ethics in Medicine

**By Christopher C. Fordham III, M.D.**

Among the University of North Carolina at Chapel Hill School of Medicine's many international activities and relationships has been a series of Anglo-American conferences co-sponsored with the Royal Society of Medicine in London and the Royal Society of Medicine Foundation Inc., of New York, for more than a decade. The most recent of these conferences was held in London, September 8-10, 1993, and dealt with the extremely timely subject of "Trust and Ethics in Medical Care: Patients and their Doctors."

Outstanding speakers from both sides of the Atlantic addressed an array of issues which appear to influence and impair trust and the traditional physician/patient relationship. Dean Stuart Bondurant had appointed a planning committee consisting of Associate Deans William Easterling, M.D., and Eugene Mayer, M.D., and Professor Christopher Fordham, M.D., and the committee worked closely with officials at the Royal Society of Medicine and the Foundation in developing the program, the speakers and the funding for the conference. Speakers from the United States, in addition to members of the UNC faculty, included David Rogers, M.D., of the New York Hospital-Cornell Medical Center; Jerome Barondess, M.D., president of the New York Academy of Medicine; Arnold Relman, M.D., former editor of the *New England Journal of Medicine*; Robert Lawrence, M.D., vice president of the Rockefeller Foundation; John Iglehart, a regular columnist on health policy with the *New England Journal of Medicine*; Barbara Schneidman, M.D., associate vice president, American Board of Medical Specialties; and Kenneth Ryan, M.D., professor of obstetrics and gynecology at the Harvard Medical School. Members of the planning committee took part in the program, as did Larry Churchill, M.D., chair of the UNC Department of Social Medicine, and Stanley Mandel, M.D., associate dean and professor of surgery. Speakers from the British side were equally effective, and all gave sparkling presentations, followed by thoughtful responses of critically important issues relating to trust in medical care.

The subject and substance of this Anglo-American conference are entirely consistent with the character and traditions of the University of North Carolina and its School of Medicine. In education, as in health and medicine, trust is of the essence. Many of us believe that medicine is not fundamentally a business; commercialization, physician unfitness, litigation, allegations of fraud and misbehavior and excessive bureaucracy all can and do impair trust. Without trust, the higher values of our society, including our professions, simply cannot be realized. Thus, the issues of trust, and factors that relate to it, are truly worthy issues for the extensive consideration and contemplation of this faculty and those associated with it.

Since this was the sixth such conference between these same sponsoring organizations, we have accumulated sufficient experience to comment about the relationship. First, the chemistry of interaction between distinguished medical people from each side of the Atlantic tends to be invigorating and to have a certain magic about it. That was certainly true of this conference on trust and ethics in medical care. Further, the interactions that occur tend to create strong and impressive institutional and personal relationships which, in sum, seem to enhance our capacity to serve our constituencies with effectiveness, commitment and distinction. Thus, one can be extremely positive about this trans-Atlantic exchange, the quality of intellectual interaction, the enhancement of the spirit, and the universal commitment to serve our patients better. We are grateful to our colleagues throughout the United States and the United Kingdom who have made this relationship possible and who have helped to nurture it. □

*—Christopher C. Fordham III, M.D., is chancellor emeritus of UNC and a former dean of the UNC School of Medicine. He also holds appointments as professor of medicine and social medicine at UNC.*

# Development Notes

## Alumni Association Presents First Loyalty Fund Scholarship Awards

The University of North Carolina at Chapel Hill Medical Alumni Association recently presented Loyalty Fund Scholarship awards totaling more than $90,000 to 37 UNC School of Medicine students.

"This is the culmination of years of hard work and preparation of many alumni to make these presentations possible," said Mary Susan Fulghum, M.D., president of the Medical Alumni Association. "The support of the alumni of the School of Medicine has enabled us to make a significant impact on our medical students' education. Just two years ago, our awards totaled just $2,500."

The awards were given on the basis of the students' academic excellence, service to humanity, breadth of personal and educational experiences, and financial need. The Loyalty Fund is the annual giving fund of the Medical Alumni Association of the School of Medicine.

Five four-year, $2,500 scholarships were awarded to first-year medical students Andrea Decsi of Charlotte, Robert Miller of Shelby, Julia Nelson of Durham, William Pittman III of Windsor and Jennifer Stoddard of Raleigh.

Receiving one-year $2,500 scholarships were fourth-year medical students Grace Ayscue, Kathleen Hill, Claudia Prose, Henry Walke Jr. and J. David Ward II, all of Chapel Hill; Lisa Gillespie, Vanessa McPherson and William Plyler, all of Carrboro; and John Rusher of Raleigh.

Third-year medical students who received $2,500 awards were Joshua Bernstein, John Holtzappel and Carol G. Shore, all of Chapel Hill.

Second-year students receiving $2,500 awards were Robert Dums, Cheryl B. Farmer and Dain E. Vines, all of Chapel Hill.

Also, a $1,000 scholarship was presented to medical allied health student Joelle Roberson of Durham.

Loyalty Fund Merit awardees who received $2,500 scholarships were Laura Bachmann, Evan Black, Jane Brice, Marlene Calderon, Wendi Carlton, Elizabeth Creech, William Goodnight III, Kent Kercher, Keith Kim, Suzanne Lazorick, Wendy Kay McNeill and Hilary Timmis Jr., class of 1994. Winners from the class of 1995 were Elisabeth Kahl and Monica Piecyk. Class of 1996 winners were Brian Grogg and Daniel Maher.

## 1993-94 Loyalty Fund Goals Set

After a careful analysis of the needs of UNC medical student, faculty and alumni programs and of the Health Sciences Library for next year, Medical Alumni Association leaders have set their 1993-94 Loyalty Fund goals at $450,000 and 33 percent participation.

"Enthusiasm and support for the Loyalty Fund keeps getting better every year," said Jane McNeer, director of development with the Medical Foundation of North Carolina. "Last year we exceeded our goal, and I believe we'll do it again this year. However, in addition to surpassing our goal, our focus will be on improving the participation rate to 33 percent."

Last year's participation goal was 33 percent; however, only 28 percent of medical school alumni donated to the Loyalty Fund. The association also hopes to increase the number of Loyalty Fund Associates, donors who give $1,000 or more to the Loyalty Fund, from last year's 232 to 250. Loyalty Fund Associates are also recognized as members of the Co-Founders' Club, the annual recognition club for donors who give $1,000 or more to the medical center.

Class reunion steering committee chairs have been recruited to help lead the way to meet this year's goal. They are: J. Stuart Gaul Jr., M.D., of Charlotte, class of 1944; Joel S. Goodwin, M.D., of Salisbury, class of 1959; Bruce H. Berryhill, M.D., of Charlotte, class of 1964; James S. Powers, M.D., of Cabin John, MD, class of 1969; and Thomas C. Spangler, M.D., of Winston-Salem, class of 1984.

Gifts and pledges to the Loyalty Fund received through June 30, 1995, will count toward the School of Medicine's Bicentennial campaign goal of $47 million. The Bicentennial Campaign for Carolina has a goal of $320 million.

# Bondurant Delivers 1993 Berryhill Lecture

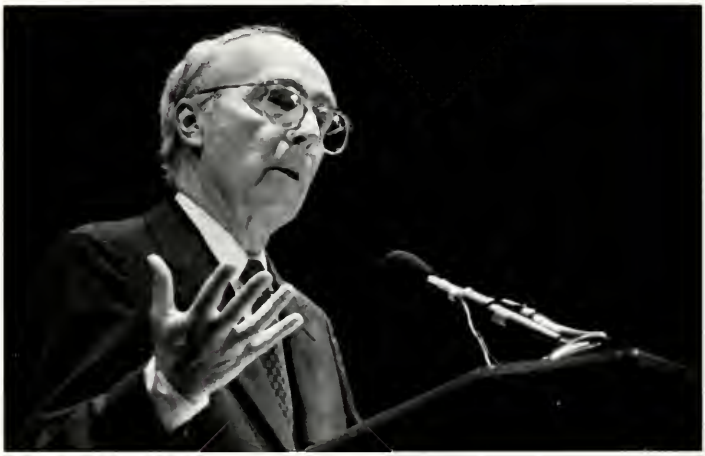


Photo by Dan Crawford

*Dean Stuart Bondurant, M.D.*

Dean Stuart Bondurant, M.D., 1993 Norma Berryhill lecturer, told a crowd of 600 gathered at Memorial Hall that lessons learned from the history of the UNC School of Medicine can continue to guide its leaders into the future.

In his presentation, "Lessons from an Epic," Bondurant elaborated on how the rich and unique history of the UNC School of Medicine provides a foundation that continues to direct the school toward greatness.

The strength of the UNC School of Medicine is based on three pillars, he said: "First, a commitment to serve the people of the state across a broad spectrum of health care needs; second, a commitment to extend and transmit biopsychosocial scholarship and professional practice of the highest order; and third, a commitment to be an integral part of the university."

The relationship and support of the people of North Carolina and the university have been a vital part of the development of the medical school, Bondurant said. Under the leadership of Dean Isaac Manning from 1905 to 1933, "... the argument for support of the medical school was shifted explicitly from a rationale based on educational access to a rationale based on the potential impact of the school on the health of the people of North Carolina ... And its graduates and programs of research and service were necessary to improve the health of the people of North Carolina."

Bondurant said this need for service to society was especially evident in 1942, during World War II, when it was reported that the state had one of the highest rates of health-related rejection of draftees.

The combined strength of the community and the University showed in 1941, when Dean Reece Berryhill sought to expand the medical school from a two-year to a four-year curriculum. "Dean Berryhill rallied the university, the Medical Society, state government, leading citizens across the state, and most notably the alumni to gain the necessary commitment of the university and the government of the state."

Community support reflected through the Legislature, Bondurant said, was modest at first, but eventually became solid and "a great institution blossomed."

Bondurant added that the North Carolina Area Health Education Centers Program is an "expression of our very origin in the will of the people of the state."

He observed that the medical school plays an integral role in the life of the state, by serving as the largest source of physicians for North Carolinians to providing career opportunities for North Carolinians who serve the state as well as throughout the world.

How can lessons learned from history guide the UNC medical school into the future?

"The primary purpose of the school is and must be to serve the needs of the people of the state," Bondurant said. "This is not only the way to survive, it is ... the way to greatness. ...We serve these needs through a balanced and interdependent array of teaching, patient care and research." He added that all three are inextricable and their integration into the evolving health care system is vital.

Bondurant added that in the school's three main endeavors, patient care, teaching and research, leaders must be careful always to put patient needs ahead of competition; to make the goal of research be the application of knowledge; and in teaching, not to overemphasize the process of learning to use learning tools, such as computers, at the expense of acquiring knowledge.

He concluded that to continue the UNC medical school's legacy, the culture of "trust, openness, tolerance and mutual support that Norma Berryhill helped create" must be fostered. "Each of us contributes to this culture and benefits from it. Each of us has a responsibility for preserving it." □

# News Briefs

## UNC, Baylor Research Shows Potential for Treating Hemophilia

A team of UNC scientists was involved in ground-breaking research that, for the first time, used gene therapy to provide long-term treatment of hemophilia B in laboratory animals, a significant step in the eventual use of gene therapy to cure human illnesses.

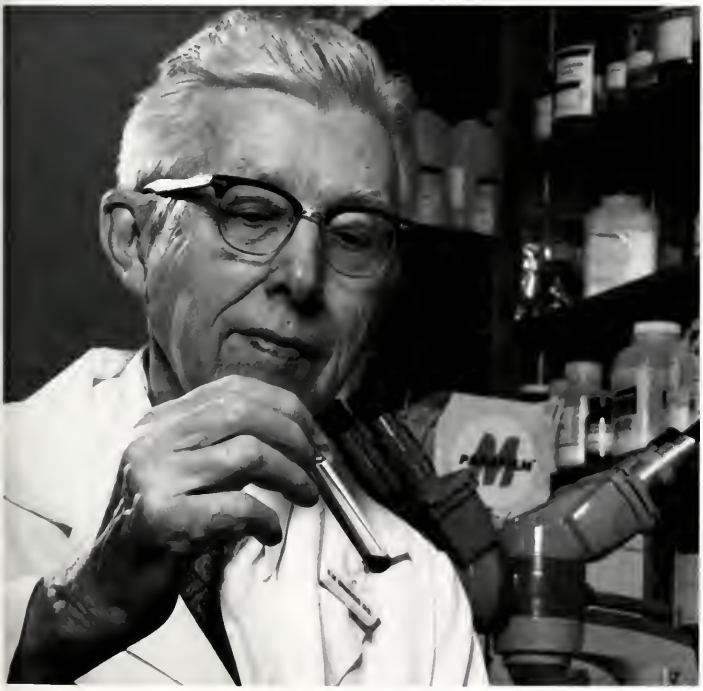
Led by Kenneth M. Brinkhous, M.D., at UNC and Savio L.C. Woo, Ph.D., of Baylor College of Medicine in Houston and the Howard Hughes Medical Institute, the team reported their findings in the October 1 issue of *Science*.

"This is the first time that hemophilia has been partially corrected," said Brinkhous, Alumni Distinguished Professor Emeritus of Pathology. "If the treatment is eventually effective in human beings with hemophilia, it would allow them to lead relatively normal lives."

Hemophilia B, mainly confined to males, occurs when liver cells fail to manufacture a blood-clotting protein called factor IX. Patients experience recurrent spontaneous bleeding, often in their joints, which is extremely painful and can be crippling. Hemophilia B affects about 1 in 30,000 males.

Gene therapy produced factor IX in hemophiliac dogs. After treatment, the animals produced factor IX for more than eight months; current therapies to stop bleeding last for only a few days.

The other UNC investigators on the project were: Dwight A. Bellinger, Ph.D., M.S. Read, Ph.D., and Charles N. Landen.



*Kenneth M. Brinkhous, M.D.*

## Thurston Arthritis Research Center Grant Renewed

The Thurston Arthritis Research Center has received a $5 million grant renewal from the National Institute for Arthritis, Musculoskeletal and Skin Diseases (NIAMS). The institute, part of the National Institutes of Health, rated the center as "outstanding."

"We are very pleased with the renewal of our grant," said John B. Winfield, M.D., center director and Herman and Louise Smith Distinguished Professor of Medicine. "It affirms that we have made substantial progress in the area of arthritis."

The center, established in 1982, is one of two in the Southeast and one of the only 12 across the country designated by NIH as multipurpose arthritis and musculoskeletal disease centers.

"The work supported by this grant will play an important role in the School of Medicine's efforts to understand and conquer arthritis," said Dean Stuart Bondurant. "The grant itself underscores the great promise of the work of our faculty in improving our ability to prevent and treat arthritis."

The center is scheduled to move into the new Thurston Building on the UNC campus in 1994. The new quarters will help centralize the research, educational and clinical efforts of more than 50 faculty members.

## UNC Researchers Help Food Stamp Recipients Choose Healthy Foods

Studies show people receiving food stamps may not be well informed about healthy eating. Using a computer program, food stamp recipients will be able to plan healthier, more nutritious meals. Investigators at the UNC School of Medicine will create such a computer program to provide individually tailored nutritional information, thanks to a $100,000 grant.

"Currently, people on food stamps often receive very little nutrition education," said Marci Campbell, Ph.D., research assistant professor in the department of nutrition. "They may be buying food that is not very

nutritious because they are uninformed about what a healthy diet is.

"Our grant will enable us to supply nutrition information in a fun, easy-to-use format," said Campbell, who also is nutrition section head of the Clinical Center for the Study of Development and Learning at UNC-CH.

The two-year grant funds an innovative demonstration project in Durham, NC, targeted at single parents with children. The U.S. Department of Agriculture funded the project, which is a cooperative effort with UNC-CH, the Food Lion grocery chain and People Designs, a local small business in Chapel Hill.

Using a special computer touchpad, food stamp recipients will answer questions about their dietary habits and their health. Participants also will answer questions about their buying habits and how to read food labels. For people with low literacy skills, audio segments will be provided to assist them in answering the questions.

The project is one of seven in the country. "Ours is the most 'high-tech' and the only one that involves the use of a computer," Campbell said. The first year of the project will be spent developing the computer program and participants will start using it in the fall of 1994.

## UNC Hospitals Offers Epilepsy Surgery

Surgery to treat epilepsy recently was added to the comprehensive multidisciplinary services the UNC epilepsy center offers to adults and children. "Managing the care of epilepsy patients has long been a strong suit of our neurology department and offering surgery is a logical extension of providing our patients the best care possible," said Bradford B. Walters, M.D., associate professor of neurosurgery at the UNC School of Medicine.

UNC Hospitals is one of three hospitals in North Carolina currently offering epilepsy surgery, but "other hospitals do not offer the comprehensive variety of services for seizure patients that we do," said Robert L. Beach, M.D., associate professor of neurology.

More than 2 million Americans have some form of epilepsy and nearly a third are under 18.

"The aim of surgery is to abolish seizures and improve the patient's quality of life by removing the area of the brain where the seizures start," Walters said. "Surgery is offered as an option for patients whose epilepsy is hard to manage despite other treatments."

## AMSA Leaders Named

UNC School of Medicine students Tony Brown and Tammy Howard have been appointed to leadership positions with the American Medical Student Association. Brown, a fourth-year student from Fort Washington, MD, was named national treasurer, and Howard, a third-year student from Greensboro, was named regional trustee to the National Board of Trustees.

Also, second-year medical students Allison Higgins from North Wilkesboro and Kathy Wray from Winston-Salem were named co-presidents of the UNC AMSA chapter.

The American Medical Student Association is the largest independent national organization developed and governed by medical students. AMSA has more than 30,000 members, 154 chapters, 16 pre-med chapters and four affiliate foreign chapters.

## UNC Scientists Show 2 Heart Medicines Better Than 1

Digoxin, a commonly used heart medicine, plays an important role in treating patients with chronic heart failure, according to a study conducted at the UNC School of Medicine.

"Our study should help end the controversy over stopping Digoxin treatment for patients with chronic heart failure who are also being treated with another type of heart medicine—angiotension-converting-enzyme inhibitors," said Kirkwood F. Adams Jr., M.D., associate professor of medicine and radiology and director of the heart failure program at UNC.

Between 2.5 million and 3 million people in the United States have chronic heart failure, including about 60,000 North Carolinians.

The study, conducted at 42 centers besides UNC-CH, was reported in the July 1 issue of the *New England Journal of Medicine*.

## UNC Opens Voice, Performing Arts Clinics

The UNC School of Medicine has opened a new Voice Wellness Clinic to educate patients about abusive behavior such as throat-clearing, coughing and speaking too loudly for a long time. The clinic is an outgrowth of speech pathology and otolaryngology services.

"Many people speak loudly against background noise or speak without good amplification," said Ellen Markus, coordinator of the UNC clinic. "I am trying to teach people how to speak in a healthy way under these conditions."

Markus also works with singers, teaching them how to manage their diets, schedules and speaking and singing voices. "A lot of singers don't know anything about warming up their voices and/or how to efficiently and effectively schedule and use practice time," said Markus, a classically trained singer who is one of the few speech pathologists who hold a doctorate in music.

Besides evaluation and therapy for individuals, the clinic offers a variety of group voice wellness programs for university music and theater departments, businesses and other work environments that are voice-intensive.

Also, to address the medical problems that commonly strike professional musicians, UNC Hospitals has opened a performing artists clinic. Robert Berger, M.D., associate professor of medicine, was instrumental in creating the clinic.

## Gallstone Study Shows No Treatment May Be Best

Contrary to popular belief, surgery or other treatments are not always necessary for some patients with gallstones, say UNC researchers.

"Each patient's prognosis is different and physicians need to tailor therapy, including providing the option of doing nothing, to meet a patient's health-care goals," said David F. Ransohoff, M.D., professor of medicine and epidemiology and co-director of the Robert Wood Johnson Clinical Scholars Program.

"Our study also has implications for using health-care dollars wisely, because not all patients with gallstones need therapy," he said. "While this is not a brand-new idea, it is supported quantitatively by our model."

A report on the study is reported in the October issue of the *Annals of Internal Medicine*.

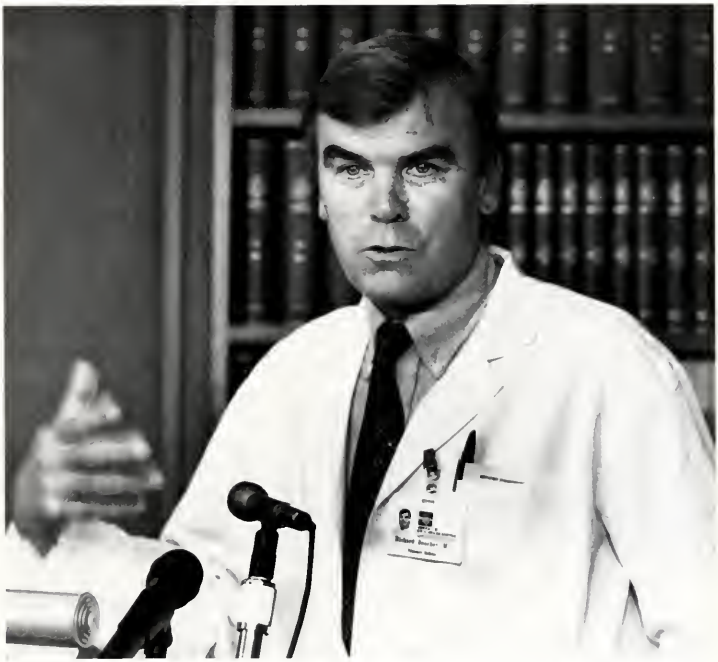
"Using simulation modeling, which incorporates a literature review, we have shown that treatment doesn't have to be the only course of action," he said. "Watching and waiting may be acceptable, depending on a patient's goals."

## Department Receives Glaxo Award

The Department of Biochemistry and Biophysics at the University of North Carolina at Chapel Hill recently received one of nine national awards presented by Glaxo Inc. It is the only biochemistry and biophysics department chosen for the award.

The two-year $41,750 graduate student fellowship award, "Academic Links," will provide financial support to train an outstanding biophysics graduate student at the UNC School of Medicine.

"I am very pleased that we were chosen, and I hope this type of activity will lead to a closer, more collaborative working relationship between the scientists at Glaxo and UNC-CH faculty and students," said Michael G. Douglas, Ph.D., professor and chair of the UNC biochemistry and biophysics department.



*Richard Boucher, M.D., responds to a reporter's questions at a recent press conference announcing the start of UNC's new cystic fibrosis gene therapy program, thanks to grants totaling $13.5 million from the National Heart, Lung and Blood Institute. The grants will allow researchers to concentrate on developing effective gene therapy for CF and other diseases. Participating in the announcement besides Boucher, who is director of the UNC CF Center, were Congressman David Price, Dean Stuart Bondurant, Stanley Mandel, M.D., chief of staff at UNC Hospitals, Richard J. Samulski, M.D., director of the UNC gene therapy program, Beverly Mitchell, M.D., leader of the UNC Lineberger Comprehensive Cancer Center's molecular therapeutics program, and Eugene Orringer, M.D., director of the General Clinical Research Center.*

## Corrections

Editors of the *Medical Alumni Bulletin* wish to correct two errors in the August issue:

• In the article "North Carolina Situation Mirrors National Problem," the colors were reversed in the graph on page 3. The graph should have shown that North Carolina's performance in producing primary care physicians outstripped that of the nation as a whole.

• The names of James W. Battaglini, M.D., and O.C. Mendes, M.D., both of Cardiothoracic Surgical Associates of Melbourne, FL, were inadvertently omitted from the article "A Different Way to Educate." They, along with the Burroughs Wellcome Company and the Dean's Office, provide funding for the Distinguished Medical Scholars Program.

We apologize for the errors.

*Ernest N. Kraybill, M.D.*

## Kraybill Receives Fuller Award

Ernest N. Kraybill, M.D., UNC professor of pediatrics and of obstetrics and gynecology, has received the 1993 H. Fleming Fuller Award from UNC Hospitals.

"Dr. Kraybill is regarded with the utmost respect for his compassion and dedication to his patients," said Eric B. Munson, UNC Hospitals executive director. "His professional expertise, his congeniality and his high code of personal values make him an invaluable asset to our staff, and it is an honor to present him with this award."

Kraybill has been practicing neonatology since the specialty began in the mid-60s and has been at the UNC School of Medicine for the last 21 years. He earned his medical degree from the University of Pennsylvania and did his residency training in pediatrics at the Washington, D.C., Children's Hospital. He received the Department of Pediatrics Resident Teaching Award in 1983.

Kraybill also has served as a member of several hospital ethics committees, and now chairs the Institutional Review Board, the UNC-CH research committee on the protection of the rights of human subjects.

The Fuller Award is named for H. Fleming Fuller, an obstetrician and gynecologist from Kinston who was known as a caring physician and outstanding teacher and community servant. He served on the UNC Hospitals board of directors from 1971 until his death in 1986.

Each year, the Fuller Award is given by the board of directors to a School of Medicine faculty member in recognition of lifelong dedication to patient care, teaching and community service.

## Gottschalk Honored with Lectureship

A distinguished lectureship has been created to honor Carl W. Gottschalk, M.D., a UNC researcher who is recognized worldwide for his contributions to understanding how the kidney functions.

The American Physiological Society has established the Carl W. Gottschalk Distinguished Lectureship of the Renal Physiology Section. The first lecture will be held next year at the organization's spring meeting in Anaheim, CA.

"We are delighted that the American Physiological Society has chosen Dr. Gottschalk, one of the university's most eminent medical scholars and statesmen, to be honored with a distinguished lectureship," said Dr. Stuart Bondurant, dean of the UNC School of Medicine. "In the four decades that he has been at UNC, he has made innumerable contributions to the understanding of renal physiology, and in doing so, has revolutionized his science and inspired some of the most brilliant and productive investigators in the field. Named for Dr. Gottschalk, the lecture will honor the highest standards of creative science."

Gottschalk, Kenan Professor of Medicine and Physiology, was the first to prove the countercurrent theory explaining how the kidney is able to excrete a fluid that is more concentrated than any of the other body fluids. The theory states that the concentration of urine varies as it flows in opposite directions through parallel tubes of the nephrons, or tubular structures that filter blood or form urine, of the kidney.

He has received numerous awards and honors, including being named a Career Investigator of the American Heart Association, the National Kidney Foundation's David M. Hume Award and the O. Max Gardner Award, which is given annually to a UNC faculty member who has made "the greatest contribution to the welfare of the human race." In 1990, he received the A. N. Richards Award of the International Society of Nephrology, and in April 1993, he won the first Robert W. Berliner Award for Excellence in Renal Physiology from the American Physiological Society.

In addition to writing numerous scientific articles, Gottschalk is a member of the National Academy of Sciences, the American Academy of Arts and Sciences and the Institute of Medicine. He also has served as president of the American Society of Nephrology.

*Carl Gottschalk, M.D.*

# Faculty Notes

**Clayton E. Wheeler Jr., M.D.,** professor of dermatology, has been selected as a "Master in Dermatology" for 1993 by the committee on History of the American Academy of Dermatology. For the past eight years, the academy has selected dermatologists who have made outstanding contributions in dermatologic teaching or research. Wheeler retired as chair of the department in 1987.

**Colin Hall, M.D.,** professor and vice chair of neurology and professor of medicine, has been named to the Mental Health Acquired Immunodeficiency Syndrome Review Committee of the National Institute of Mental Health. Hall, who also heads the UNC AIDS Neurologic Center, will serve a four-year term. The AIDS subcommittee evaluates research grant applications that focus on basic research in psychoneuroimmunology, neuroimmunology and the neurology of AIDS. It also appraises research on therapeutic treatment for complications of human immunodeficiency virus infections and biologically oriented AIDS training programs.

**J. Wilberton Edgerton, M.D.,** professor emeritus in psychiatry, recently received the Distinguished Professional Contributions to Public Service Award at the 101st convention of the American Psychological Association. He was one of two people to receive the award and was recognized for outstanding public service contributions through his knowledge and practical skills. Edgerton's career has been devoted to developing rural mental health services and enhancing mental health services in the public sector. His studies on mobilizing citizen advocates and developing community programs have greatly influenced the community mental health movement across the country.

**Robert E. Cross, Ph.D.,** professor of pathology, has been re-elected president of the American Board of Clinical Chemistry. He had served as vice president and chair of the examination committees of the organization. The ABCC was incorporated in 1950 and certifies doctoral-level professionals in clinical chemistry and toxicology on the basis of education, experience and examination. Cross, who is also director of the Toxicology/Clinical Pharmacology Laboratory, has served on the UNC faculty since 1974.

**Mark L. Graham II, M.D.,** assistant professor of medicine, has been awarded the James W. Wood Junior Faculty Award for 1993. The $3,000 award, named for a distinguished former faculty member, is intended for talented young clinical faculty members in the medical school.

**Laura Hanson, M.D.,** assistant professor of general medicine, has received a four-year, $240,000 grant from the Robert Wood Johnson Foundation. She was one of 15 physicians selected for the foundation's Generalist Physician Faculty Scholars program, aimed at increasing the number of junior faculty who achieve senior rank within generalist disciplines. The physicians will conduct research about the practice of general medicine. Hanson, who is affiliated with the Program on Aging, will focus on research for end-of-life care issues for elderly patients.

**Robert P. Kusy, Ph.D.,** professor of biomedical engineering, has been awarded a three-year, $285,000 grant from the Focused Giving Program of Johnson & Johnson. He will use the grant to research and develop interceptive diagnostics. This new technology establishes a personal biochemical baseline for patients, allowing early tracking of disorders of the body.

**David R. Hawkins, M.D.,** clinical professor of psychiatry, recently was installed as president of the American College of Psychoanalysts. The college has about 200 active fellows and members.

Hawkins, past president of the American Association of Chairmen of Psychiatry and the Illinois Psychiatric Society, has been honored for pioneer research in the psychophysiological study of sleep.

He joined the UNC faculty in 1952 and left in 1967 to become psychiatry chair at the University of Virginia. In 1979, he went to the Michael Reese Medical Center in Chicago and was a professor at the University of Chicago. He became psychiatry chairman at the Reese center in 1987 and retired five years later.

**Manuel E. Tancer, M.D.,** assistant professor of psychiatry, and director of the psychopharmacology and crisis/emergency clinics, has received the 1993-94 Jefferson-Pilot Fellowship in Academic Medicine. The fellowship, which awards Tancer $3,000 per year for four years, was created by the Jefferson Pilot Corp. to attract and retain promising junior faculty in the medical school.

**Ron Falk, M.D. '77, HS '80,** has been named chief of the Division of Nephrology, succeeding William Blythe, M.D. Falk has been on the faculty since 1983, and also serves as the clinical director of Glomerular Disease Collaborative Research.

**Marc Fritz, M.D., Bruce Lessey, M.D., Ph.D., and William Meyer, M.D.,** have joined the Division of Reproductive Endocrinology and Infertility in the Department of Obstetrics and Gynecology. Fritz is the division chief.

"We are very pleased to announce the recruitment of these outstanding subspecialists," said William Droegemueller, M.D. professor and chair of the Obstetrics and Gynecology department. "We look forward to the new, exciting technology that these superb clinicians bring to the UNC medical center.

Fritz has served as clinical consultant to the Air Force Surgeon General for reproductive endocrinology in Washington, D.C. His areas of expertise include general infertility and abnormalities of ovarian hormone secretion.

Lessey is interested in non-invasive diagnosis and treatment of endometriosis, one of the leading causes of infertility. His research in this area has received national recognition and is sponsored by the National Institutes of Health.

Meyer comes to UNC from Washington (D.C.) Hospital Center, where he served as co-director of reproductive endocrinology. His areas of expertise include ovulatory disturbances, in vitro fertilization and other assisted reproduction technologies.

# Report to Donors

The following is a report of donors during the fiscal year ended June 30, 1993. This is specifically a report of the gifts contributed by Alumni (CMED's, M.D.'s, housestaff, faculty) who supported the University of North Carolina at Chapel Hill School of Medicine. These are contributions directed to the Medical Foundation of North Carolina, Inc. Alumni gifts for all purposes, restricted and unrestricted, totaled in excess of $1.5 million.

The Loyalty Fund is the unrestricted fund for alumni giving. It is especially important because it provides for programs where there are no other resources. Your outstanding support took us to new high levels of alumni giving and participation. Unrestricted gifts from alumni totaled $426,000 and participation exceeded 28 percent. This represents a marked increase over the prior year total of $332,000. We are also pleased to note that this report represents 231 Loyalty Fund Associates who contributed $1,000 or more during the fiscal year.

Those of us at the Medical Foundation who are involved with alumni programs, including Dean Stuart Bondurant, Dr. Bill Easterling, M.D. Stephanie Stadler, Jane McNeer and Ed Crowder, are all appreciative of the growth in alumni support. John Foust, M.D. '55 of Charlotte provides leadership as our Loyalty Fund National Chair, and he extends a thank you to the countless individuals who gave time and contacted other alumni to encourage their involvement and contributions. This donor report lists the fruits of their work.

Alumni contributions for restricted programs have assisted with:

- endowed professorships
- scholarships and fellowships
- individual department and division education and research funds
- visiting lectureships, memorial funds and others.

The Loyalty Fund contributions assisted with:

- publication of the *Medical Alumni Bulletin*
- continuing the Distinguished Service Awards Program honoring alumni, faculty and others who have achieved levels of distinction
- support to the Health Sciences Library, recognizing the important role it plays in medical education
- establishing a Loyalty Fund reserve and contributing to the Medical Alumni Endowment Fund
- scholarships for medical students, which have increased this year from $250 per student to a full tuition scholar ship of $2,500. This year, Loyalty Fund scholarships have benefitted 37 students and are awarded based on a combination of academic achievement, year in medical school, leadership, service to humanity, specialty interest and financial need.

Please note that this report acknowledges only alumni giving through the Medical Foundation. For this and all you do, we are genuinely appreciative.

Photo by Dan Crawford

*Loyalty Fund Scholarship winner Chris Miller and Nicole Blackwell with Medical Alumni Association President Mary Susan Fulghum, M.D. '71.*

James L. Copeland
Executive Vice President
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*$1,000-$9,999 donors are printed in bold.*
*$10,000 or more are printed in bold italics.*

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A. Ray Newsome, M.D., Winston-Salem, NC
**Louie L. Patseavouras, M.D., Greensboro, NC**
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Bobby A. Richardson, M.D., Ocala, FL
James H. Robinson, M.D., Wilmington, NC
**W. Ray Samuels, M.D., Charlotte, NC**
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**Jerry E. Smith, M.D., Pinehurst, NC**
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**Donn A. Wells, M.D., Fort Lauderdale, FL**

CLASS OF 1962
**Number in class: 53**
**Percent donors: 45%**
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Jerry J. Eller, M.D., Livingston, AL
A. Ray Evans, M.D., Greenville, NC
Thomas William Gable, M.D., Atlanta, GA
Marion W. Griffin, M.D., Asheboro, NC
H. Gerard Hartzog, III, M.D., Raleigh, NC
**Ray M. Hayworth, M.D., Knoxville, TN**
Edward McGowan Hedgpeth, Jr., M.D., Durham, NC

Photo by Dan Crawford

*Loyalty Fund Scholarship and Merit Award winners: (Kneeling) Dain Vines '96, Wendi Carlton '94, David Ward '94, Elizabeth Creech '94, John Holtzapple '95; (2nd row) Keith Kim '94, Brian Grogg '96, Joelle Roberson of Medical Allied Health, Kathleen Hill '94, Laura Bachmann '94, Marlene Calderon '94, Evan Black '94, William Goodnight '94; (3rd row) Carol Shore '95, Jane Brice '94, Julia Nelson '97, Jennifer Stoddard '97, Andrea Decsi '97, Chris Miller '97, Wendy McNeill '94, Lisa Gillespie '94, Vanessa McPherson '94, Kent Kercher '94; (back row) Suzanne Lazorick '95, John Rusher '94, Henry Walke '94, William G. (Trey) Pittman III '97, Daniel Maher '96, Tim Timmis '94, Lanse Plyler '94, Grace Ayscue '94, Elisabeth Kahl '95 and Monica Piecyk '95. Not pictured are Joshua Bernstein '95, Claudia Prose '94, Robert Dums '96, and Cheryl Farmer '96.*

John Newton MacCormack, M.D., Raleigh, NC
**John L. Monroe, M.D., Pinehurst, NC**
**Kenny J. Morris, M.D., Wilmington, NC**
William J. Murray, M.D., Durham, NC
**Carl S. Phipps, M.D., Winston-Salem, NC**
C. Glenn Pickard, Jr., M.D., Chapel Hill, NC
**William R. Pitser, M.D., Winston-Salem, NC**
**J. Flint Rhodes, M.D., Raleigh, NC**
**Lambros C. Rigas, M.D., Rome, GA**
**D. E. Scarborough, Jr., M.D., Raleigh, NC**
James F. Smith, M.D., Palm Beach Gardens, FL
David Thomas Watson, M.D., Atlanta, GA
Abner C. Withers, M.D., Morganton, NC
Judith F. S. Yongue, M.D., Greenville, NC

CLASS OF 1963
**Number in class: 53**
**Percent donors: 57%**
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Karl F. Bitter, M.D., Asheville, NC
**J. Andrew Burnam, M.D., Fort Myers, FL**
Bruce F. Caldwell, M.D., Clinton, NC
**I. Kelman Cohen, M.D., Richmond, VA**
Donald L. Copeland, M.D., Huntersville, NC
Robert J. Cowan, M.D., Winston-Salem, NC
John W. Dalton, Jr., M.D., Santa Monica, CA
Dave M. Davis, M.D., Atlanta, GA
William Brown Deal, M.D., Birmingham, AL
Ira M. Hardy, II, M.D., Greenville, NC
George C. Hemingway, Jr., M.D., Tarboro, NC
**W. Bryan Latham, M.D., Miami, FL**
**Eugene W. Pate, Jr., M.D., Kinston, NC**
Richard L. Pressley, M.D., Longmont, CO
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**Charles J. Sawyer, III, M.D., Ahoskie, NC**
Samuel E. Scott, M.D., Burlington, NC
Stephen R. Shaffer, M.D., Asheville, NC
**Richard W. Shermer, M.D., Chapel Hill, NC**
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Jerry Allen Smith, M.D., Memphis, TN
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Roy A. Weaver, M.D., Fayetteville, NC
Jack H. Welch, M.D., Greenville, NC
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David R. Williams, M.D., Thomasville, NC

CLASS OF 1964
**Number in class: 55**
**Percent donors: 25%**
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**Bruce H. Berryhill, M.D., Charlotte, NC**
Winslow Brabson, M.D., North Hampton, NH
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Roy L. Curry, Jr., M.D., San Francisco, CA
John B. Fox, M.D., Paradise Valley, AZ
Clyde M. Gaffney, III, M.D., Carmichael, CA
G. Patrick Henderson, Jr., M.D., Southern Pines, NC
Mickael M. Kannan, M.D., Richmond, VA
Noel B. McDevitt, M.D., Southern Pines, NC
William M. Monroe, M.D., Greenville, NC
Augustus S. Rose, III, M.D., Long Beach, CA
James W. Rose, Jr., M.D., Madison, WI
Wayne B. Venters, M.D., Jacksonville, NC

CLASS OF 1965
**Number in class: 56**
**Percent donors: 25%**
**George William Bates, M.D., Greenville, SC**
Daniel E. Brown, M.D., Raleigh, NC
**Takey Crist, M.D., Jacksonville, NC**
**Howard Holderness, Jr., M.D., Greensboro, NC**
**Joe Paul Hurt, M.D., Sylva, NC**
**Gordon Buck LeGrand, M.D., Raleigh, NC**
Donald D. McNeill, Jr., M.D., Lenoir, NC
Peter A. Modrow, M.D., Raleigh, NC
**Thomas L. Presson, M.D., Greensboro, NC**
William F. Sayers, Jr., M.D., Winston-Salem, NC
Evin H. Sides, III, M.D., Raleigh, NC
Williamson Beasley Strum, M.D., La Jolla, CA
**Donald Phillip Whitley, M.D., Richmond, VA**
**Willis H. Williams, M.D., Atlanta, GA**

CLASS OF 1966
**Number in class: 64**
**Percent donors: 56%**
**J. Curtis Abell, M.D., Statesville, NC**
**Robert H. Bilbro, M.D., Raleigh, NC**
**William Hampton Bowers, M.D., Richmond, VA**
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**Philip C. Deaton, M.D., Greensboro, NC**
Wesley Caswell Fowler, Jr., M.D., Chapel Hill, NC
Cyrus Leighton Gray, III, M.D., Tampa, FL
Carol H. Hackett, M.D., Mercer Island, WA
**Lawrence D. Henry, M.D., Jefferson City, MO**
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N. Neil Howell, M.D., Charlotte, NC
Elizabeth S. Hoyt, M.D., Cary, NC
William Colvin Hubbard, M.D., Raleigh, NC
**Thomas J. Koontz, M.D., Winston-Salem, NC**
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**Hugh A. McAllister, Jr., M.D., Houston, TX**
Michael Allan Moore, M.D., Danville, VA
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Duncan Morton, Jr., M.D., Charlotte, NC
**Hugh G. Murray, Jr., M.D., Atlanta, GA**
Roy Kenneth Pons, M.D., Medford, OR
James A. Pressly, M.D., Charlotte, NC
Don Warren Printz, M.D., Stone Mountain, GA
Charles K. Scott, M.D., Burlington, NC
**Robert E. Sevier, M.D., Greensboro, NC**
**J. Lewis Sigmon, Jr., M.D., Charlotte, NC**
**Robert G. Simmons, M.D., Danville, VA**
H. Lee Smyre, M.D., Greer, SC
E. Walker Stevens, Jr., M.D., Greensboro, NC
**W. Hunter Vaughan, M.D., Steubenville, OH**
James H. Whicker, M.D., Raleigh, NC
James A. Yount, M.D., Charlotte, NC

CLASS OF 1967
**Number in class: 67**
**Percent donors: 60%**
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**F. Walton Avery, M.D., Raleigh, NC**
Gerald W. Blake, M.D., Raleigh, NC
**Thomas W. Bundy, M.D., Chambersburg, PA**
John L. Currie, M.D., Glen Arm, MD
**Vartan A. Davidian, Jr., M.D., Raleigh, NC**
**Charles Allan Eure, M.D., Raleigh, NC**
David A. Evans, M.D., Monroe, NC
**M. Wayne Flye, M.D., St. Louis, MO**
R. Donald Garrison, M.D., Jacksonville, FL
**Jeremy W. Greene, M.D., San Antonio, TX**
Harvey J. Hamrick, M.D., Chapel Hill, NC
E. Franklin Hart, Jr., M.D., Morganton, NC
Howard D. Homesley, M.D., Winston-Salem, NC
**L. Fuller Honeycutt, Jr., M.D., Raleigh, NC**
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**James D. Hundley, M.D., Wilmington, NC**
Linda H. Jackson, M.D., Arden, NC
**William Henry Jarman, Jr., M.D., Gastonia, NC**
Scott Gerald Kleiman, M.D., Marietta, GA
**Hugh T. Lefler, Jr., M.D., Fort Worth, TX**
Jacob A. Lohr, M.D., Durham, NC
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**W. Jason McDaniel, Jr., M.D., Raleigh, NC**
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H. Richard Parker, Jr., M.D., Greensboro, NC
**Gerald Pelletier, Jr., M.D., New Bern, NC**
Bruce Alton Phillips, Jr., M.D., Elizabethtown, NC
**Albert L. Roper, II, M.D., Norfolk, VA**
**Douglas M. Russell, M.D., Goldsboro, NC**
Walter Roberts Sabiston, M.D., Kinston, NC
**James H. Spruill, M.D., Jackson, TN**
**Henry C. Thomason, Jr., M.D., Gastonia, NC**
**Benjamin K. Ward, Jr., M.D., Florence, SC**
Barry M. Welborne, M.D., Charlotte, NC

CLASS OF 1968
**Number in class: 60**
**Percent donors: 60%**
**Joseph P. Archie, Jr., M.D., Raleigh, NC**
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Philip D. Coleman, Jr., M.D., Washington, NC
I. Alan Craig, M.D., Kinston, NC
**Edward W. Davidian, M.D., Chapel Hill, NC**
Alan Davidson, III, M.D., Long Meadow, MA
Matthew R. Friedman, M.D., Longmeadow, MA
Terry D. Golden, M.D., Atlanta, GA
Theodora L. Gongaware, M.D., Savannah, GA
**Joseph W. Griffin, Jr., M.D., Augusta, GA**
**Frank W. Gwathmey, M.D., Norfolk, VA**
Hoke Frederick Henderson, Jr., M.D., Columbia, SC
Thomas L. Henley, M.D., Vista, CA
William O. Kearse, Jr., M.D., Lubbock, TX
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**Jerold E. Lancourt, M.D., Dallas, TX**
R. Frank Lowry, Jr., M.D., Raleigh, NC
Patrick T. Malone, M.D., Roswell, GA
John C. Markham, III, M.D., Augusta, GA
**R. Gale Martin, M.D., Southern Pines, NC**
James M. Nesbitt, Jr., M.D., Anchorage, AK
David John Reese, II, M.D., Alexandria, VA
James M. Rhyne, M.D., Statesville, NC
**David M. Rubin, M.D., Greensboro, NC**
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Robert B. Shearin, M.D., Rockville, MD
George S. Stretcher, M.D., Spartanburg, SC
F. Charles Tucker, Jr., M.D., Gulf Breeze, FL
Robert C. Vanderberry, Jr., M.D., Raleigh, NC
**Walter C. Whitehurst, Jr., M.D., Jacksonville, NC**
Thomas H. Whitley, Jr., M.D., Danville, VA
Morris E. Williams, Jr., M.D., Greenville, SC
Roberta G. Williams, M.D., Los Angeles, CA
**Jerry C. Woodard, M.D., Wilson, NC**

CLASS OF 1969
**Number in class: 63**
**Percent donors: 38%**
**H. Wallace Baird, M.D., Greensboro, NC**
John G. Briggs, Jr., M.D., Fayetteville, NC
**P. Eugene Brown, M.D., Hickory, NC**
**J. Hugh Bryan, M.D., Fayetteville, NC**
**Don C. Chaplin, M.D., Burlington, NC**
R. Samuel Cromartie, III, M.D., Ormand Beach, FL
**Andrew Davidson, M.D., New Bern, NC**
C. Richard Fleming, M.D., Jacksonville, FL
Hugh J. Grant, Jr., M.D., Raleigh, NC
Thomas R. Griggs, M.D., Hillsborough, NC
G. Patrick Guiteras, M.D., Chapel Hill, NC
Lynous W. Hall, M.D., Mission Hills, CA
C. Craig Heindel, Sr., M.D., Lewiston, ME
John G. Johnston, M.D., Charlotte, NC
Richard A. Keever, M.D., High Point, NC
Charles D. Kirk, M.D., Raleigh, NC
Henry J. MacDonald, Jr., M.D., New Bern, NC
**J. Tift Mann, III, M.D., Raleigh, NC**
David W. Pearsall, Jr., M.D., Greenville, NC
**James S. Powers, M.D., Cabin John, MD**
**J. Franklin Sanderson, Jr., M.D., Hampton, VA**
**David S. Sheps, M.D., Chapel Hill, NC**
**Karen C. Sorrels, M.D., Midlothian, VA**
Franklin T. Tew, M.D., Windermere, FL

CLASS OF 1970
**Number in class: 70**
**Percent donors: 66%**
William C. Allsbrook, Jr., M.D., Martinez, GA
**Jerry C. Bernstein, M.D., Raleigh, NC**
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James P. Browder, III, M.D., Durham, NC
Donald C. Brown, M.D., Cary, NC
Julian Goode Busby, Jr., M.D., High Point, NC
William J. Busby, M.D., Thomasville, NC
Harold H. Cameron, M.D., New Bern, NC
Bruce Shoo-tang Chang, M.D., Louisville, KY
Charles Edwin Crumley, M.D., Lincolnton, NC
H. Shelton Earp, III, M.D., Chapel Hill, NC
Mary Herring Edwards, M.D., Pittsburgh, PA
Richard McConnell Freeman, M.D., Opelika, AL
**James O. Goodwin, M.D., Henderson, NC**
Stephen Lloyd Green, M.D., Newport News, VA
**Joseph Michael Harmon, M. D., Charleston, SC**
John Frederick Hartness, Jr., M.D., Monroe, NC
William Borden Hooks, Jr., M.D., Mount Airy, NC
Donald Douglas Howe, M.D., Gastonia, NC
James Jay Jenkins, M.D., Saint Louis, MO
**William R. Jordan, M.D., Fayetteville, NC**
Alexander Ryland Kehayes, M.D., Missoula, MT
Crawford Bryan Koon, Jr., M.D., Durham, NC
**Frederick George Kroncke, Jr., M.D., Rocky Mount, NC**
Charles Deems Lefler, M.D., Brevard, NC
James Aubrey McQueen, M.D., Laurinburg, NC
Michael A. Moore, M.D., Danville, VA
Thomas Westray Nicholson, M.D., Washington, NC
**Edward A. Norfleet, M.D., Chapel Hill, NC**
L. Christine Oliver, M.D., Brookline, MA
R. Kirby Primm, M.D., Wenatchee, WA
**David A. Rendleman, III, M.D., Raleigh, NC**
Thomas Adams Roberts, Jr., M.D., Charlotte, NC
**James Boykin Sloan, M.D., Wilmington, NC**
Kenneth William Smithson, M.D., Phoenix, AZ
James David Smithwick, M.D., Laurinburg, NC
Rick Ian Suberman, M.D., Chapel Hill, NC
Charles Eugene Thompson, M.D., New Rochelle, NY
T. Reed Underhill, M.D., New Bern, NC
Ross L. Vaughan, Jr., M.D., Raleigh, NC
**E. Lance Walker, M.D., Littleton, CO**
M. Dewey D. Walker, M.D., Denver, CO
William J. Weatherly, M.D., Greensboro, NC
**Heber Grey Winfield, III, M.D., Hickory, NC**
**James E. Winslow, Jr., M.D., Roxboro, NC**
John W. Zirkle, M.D., Jefferson City, TN

CLASS OF 1971
**Number in class: 72**
**Percent donors: 46%**
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Enser W. Cole, III, M.D., Severna Park, MD
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Jane M. Foy, M.D., Oak Ridge, NC
**James S. Fulghum, III, M.D., Raleigh, NC**
**Mary Susan Fulghum, M.D., Raleigh, NC**
Daniel Paul Greenfield, M.D., Short Hills, NJ
**Clarence A. Griffin, III, M.D., Longmont, CO**
James G. Groce, M.D., Cary, NC
**Walter D. Holder, Jr., M.D., Charlotte, NC**
Michael R. Knowles, M.D., Chapel Hill, NC
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Donald Vincent Lewis, M.D., Cooperstown, NY
**Edgar Watson Little, M.D., Greensboro, NC**
**Jonathan O. McLean, M.D., Charlotte, NC**
**Philip D. Meador, Jr., M.D., Henderson, NC**
***Frederick S. Neuer, M.D., Emporia, KS***
**William B. Pittman, M.D., Rocky Mount, NC**
John O. Reynolds, Jr., M.D., Salisbury, NC
Charles H. Richman, M.D., Saratoga Springs, NY
Virgil Odell Roberson, M.D., High Point, NC
Sara H. Sinal, M.D., Winston-Salem, NC
**Cameron L. Smith, M.D., Greenville, NC**
**G. Terry Stewart, II, M.D., Wilmington, NC**
**John P. Surratt, M.D., Clinton, NC**
J. Peter Van Dorsten, M.D., Charleston, SC
**George C. Venters, M.D., Raleigh, NC**
David K. Wagoner, M.D., Charlotte, NC
**William W. Webb, Jr., M.D., Salisbury, NC**

CLASS OF 1972
**Number in class: 68**
**Percent donors: 41%**
Myron H. Brand, M.D., Madison, CT
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Peter George Chikes, M.D., Concord, NC
W. Andrew Cook, M.D., Houston, TX
J. McNeill Gibson, M.D., Davidson, NC
Karen W. Green, M.D., Holden, MA
**Walter B. Greene, M.D., Chapel Hill, NC**
Alger V. Hamrick, III, M.D., Raleigh, NC
L. Clayton Harrell, III, M.D., Charlotte, NC
Hubert B. Haywood, III, M.D., Raleigh, NC
Frederick Christian Heaton, M.D., Raleigh, NC
John T. Henley, Jr., M.D., Fayetteville, NC
Larry Allison High, Jr., M.D., Rocky Mount, NC
William Baker Horn, M.D., Boone, NC
J. Ronald Hunt, M.D., Columbus, GA
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Ronald J. Stanley, M.D., Boone, NC
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Selman Irvin Welt, M.D., Lubbock, TX
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G. Dean Wilson, Jr., M.D., Johnson City, TN
J. Richard Young, M.D., Newton Highlands, MA

CLASS OF 1973
**Number in class: 80**
**Percent donors: 26%**
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**Franklin S. Clark, III, M.D., Fayetteville, NC**
Melvin L. Clayton, M.D., Ahoskie, NC
Thomas R. Dempsey, M.D., Mobile, AL
**Charles H. Edwards, II, M.D., Charlotte, NC**
J. Robert Forstner, M.D., Southport, NC
E. Ruffin Franklin, Jr., M.D., Raleigh, NC
**David A. Grimes, M.D., San Francisco, CA**
**E. Earl Jenkins, Jr., M.D., Rock Hill, SC**
Colin D. Jones, M.D., Winton, NC
John C. Long, M.D., Pfafftown, NC
James N. Martin, Jr., M.D., Jackson, MS
Dale A. Newton, M.D., Greenville, NC
W. McLean Reavis, Jr., M.D., Lakeland, FL
C. Stewart Rogers, M.D., Greensboro, NC
Frank B. Sloop, Jr., M.D., Charlottesville, VA
L. Joseph Swaim, Jr., M.D., Raleigh, NC
Robert R. Walther, M.D., New York, NY

CLASS OF 1974
**Number in class: 96**
**Percent donors: 29%**
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**John Harrison Baker, M.D., Williamsburg, VA**
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Donald C. Brown, M.D., Cary, NC
David R. Clemmons, M.D., Chapel Hill, NC
George Watts Colclough, M.D., Lexington, KY
**Charles David Collins, M.D., Elkin, NC**
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James Harden Howell, III, M.D., Wenatchee, WA
**C. Norman Hurwitz, M.D., Hamilton, OH**
**Joseph M. Jenkins, M.D., Fayetteville, NC**
John Albert Lang, III, M.D., Raleigh, NC
Thomas W. Littlejohn, III, M.D., Winston-Salem, NC
Clarence Earl Lloyd, Jr., M.D., Greensboro, NC
Philip L. Martin, M.D., Raleigh, NC
Sheppard A. McKenzie, III, M.D., Raleigh, NC
**William H. Moretz, Jr., M.D., Augusta, GA**
H. Clifton Patterson, III, M.D., Raleigh, NC
**Harold C. Pollard, III, M.D., Winston-Salem, NC**
**Jan Hendrik Postma, Jr., M.D., Spartanburg, SC**
**C. Fredric Reid, M.D., Winston-Salem, NC**
David Earl Tart, M.D., Hickory, NC
David T. Tayloe, Jr., M.D., Goldsboro, NC
Charles H. Weiss, M.D., Newton, MA
Kenneth Heaton Wilson, M.D., Chapel Hill, NC
William G. Wilson, M.D., Charlottesville, VA

CLASS OF 1975
**Number in class: 99**
**Percent donors: 32%**
Earl Jackson Allison, Jr., M.D., Greenville, NC
Thel Gordon Boyette, Jr., M.D., Rochester, NY
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Julian T. Brantley, Jr., M.D., Vienna, VA
Christian Cameron, M.D., Atlanta, GA
Douglas H. Clark, Jr., M.D., Concord, NC
Dallas C. Craven, Jr., M.D., Charlotte, NC
Clarence E. Fogleman III, M.D., Colorado Springs, CO
**Frank B. Fondren, III, M.D., Mobile, AL**
**Richard F. Fox, M.D., Greensboro, NC**
**Donald G. Gregg, M.D., Greenville, SC**
William C. Hayes, Jr., M.D., Gastonia, NC
Eric H. Helsabeck, M.D., Asheboro, NC
David S. Lennon, M.D., Charlotte, NC
Gary Mark McClain, M.D., Tequesta, FL
Frank J. Miller, M.D., Chattanooga, TN
Frank H. Moretz, M.D., Asheville, NC
Wade H. Moser, Jr., M.D., Raleigh, NC
**W. Ronald Neal, M.D., Greensboro, NC**
Lanning R. Newell, M.D., Raleigh, NC
**Marshall H. Odom, M.D., Key West, FL**
Henry Edward Parfitt, Jr., M.D., Fayetteville, NC
**Charles J. Parker, M.D., Salt Lake City, UT**
James E. Peacock, Jr., M.D., Winston-Salem, NC
James Louis Price, III, M.D., Wilmington, NC
Joseph R. Pringle, Jr., M.D., Burlington, NC
W. Paul Sawyer, M.D., Tallahassee, FL
Michael Andrew Stang, M.D., Pikesville, MD
F. Alan Thompson, M.D., Asheville, NC
H. Hallett Whitman, III, M.D., New Vernon, NJ
James Weeks Winslow, M.D., Tarboro, NC
**Kenneth H. Winter, M.D., Greensboro, NC**

CLASS OF 1976
**Number in class: 122**
**Percent donors: 34%**
Kirkwood F. Adams, Jr., M.D., Chapel Hill, NC
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Warwick Aiken, III, M.D., Gastonia, NC
Janet Cybrynski Aiken, M.D., Gastonia, NC
Paul D. Barry, M.D., Greensboro, NC
Wallace Bryson Bateman, Jr., M.D., Goldsboro, NC
Robert G. Berger, M.D., Chapel Hill, NC
Jean Crowell Bolan, M.D., Washington, DC
Richard Allan Bowerman, M.D., Ann Arbor, MI
Clinton Albert Briley, Jr., M.D., Charleston, WV
Barbara Jean Campbell, M.D., Somerset, PA
Marjorie B. Carr, M.D., Raleigh, NC
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James R. Yankaskas, M.D., Chapel Hill, NC

# Class Notes

## Manning Berryhill Club

**Robert S. Beam, D.D.S., M.D. '40,** is a retired dentist in Durham. He keeps busy doing volunteer work, and he serves as a lay minister and a crisis counselor at White Memorial Presbyterian Church. For years after retiring, he was a volunteer dentist with the Raleigh-Wake County Dental Society and the Wake County Health Department.

**John H. Miller, M.D. '42,** is a partner at Miller, Coury and Nobo, M.D., PA. He lives in Bartow, FL.

**George McLemore, M.D. '46,** is practicing internal medicine and cardiology in Manhattan.

**Richard B. Willingham, M.D. '47,** is a retired partner of Knoxville Pediatric Group in Tennessee. He was recently named Senior Pediatrician for 1993 by the Tennessee Pediatric Society.

**R. J. "Jack" Blackley, M.D. '51,** is a medical consultant with the N.C. Department of Human Resources, Division of Mental Health, Developmental Disabilities and Substance Abuse Services. He says he enjoys working with medical students and also giving "mock" oral boards in psychiatry.

## 50s

**Thomas A. Noone, M.D. '58,** is an assistant professor at the Robert Wood Johnson Medical Center in New Jersey. He recently received the Golden Apple award for excellence in teaching obstetrics and gynecology from the class of 1993 of the Robert Wood Johnson Medical School. He lives in Haddonfield, NJ.

**Charles W. Phillips, M.D. '58,** is in family practice in Gibsonville. He reports that his son, Chris, 9, is already talking about going to the UNC School of Medicine.

## 60s

**Dave M. Davis, M.D. '63,** is director of the Piedmont Psychiatric Clinic. He reports that his golf scores are up and down, but he's still "truckin' and cookin'."

**Richard Honsinger, M.D. HS '65,** in an internist-allergist in Los Alamos, NM.

**Cyrus L. Gray, M.D. '66,** is a gynecologist in Tampa, FL. He has been retired from obstetrics for the past seven years and says it was "probably the best move I ever made."

## 70s

**Douglas E. Henley, M.D. '77,** of Fayetteville was elected chair of the board of directors of the American Academy of Family Physicians, the national association of family physicians. In addition to being a private practitioner, he is a clinical assistant professor in the Department of Family Medicine at the UNC School of Medicine. He is also a fellow of the AAFP and a Diplomate of the American Board of Family Practice.

**Carla Jean Hinds, M.D. '79,** recently opened a private allergy practice in her hometown, Destin, FL. She says she "just paid off her medical school bills. What a time to be getting started!"

**Chris Paletta, M.D. '79,** is an associate professor of plastic surgery at the St. Louis University School of Medicine. He has been at the university since 1986 and lives in Webster Groves, MO. He says it "seems like ages ago when we were in first-year histology and biochemistry."

## 80s

**Henry Temple, M.D. '80,** recently finished a year as chief of staff at New Hanover Regional Medical Center in Wilmington.

**Douglas Kiel, M.D. '81,** is an assistant professor of medicine at Harvard Medical School. He announces the birth of a second daughter, Maya Thurber.

**Vincent Kopp, M.D. '82,** joined the UNC School of Medicine faculty as an assistant professor of anesthesiology in January. He also has appointments in pediatrics and social medicine. He has three children, Margaret, 13, and twins Elizabeth and Katherine, 7.

**Gail L. Shaw, M.D. '83,** a senior investigator at the National Cancer Institute, lives in Silver Spring, MD.

**Mark Warren, M.D. '84,** says he's enjoying private endocrinology practice in Greenville. His wife, Kemper, is in her final year of medical school at East Carolina University, and they have a 1-year-old daughter, "Browne."

**Gary M. Horowitz, M.D. '85,** is chief of the Division of Reproductive Endocrinology and Infertility at David Grant Medical Center in Vacaville, CA. He has two children, Alexander, 11, and Rachel, 7.

**Paul R. and Margie B. Eason, M.D. '88,** of Martinsville, VA, announce the birth of Stephen Paul in August. They also have a 3-year old daughter, Rachel.

**R. Mark Hoyle, M.D. '88,** is a vascular fellow at Vanderbilt University in Nashville, TN. He recently finished general surgery residency at the University of Texas Southwestern (Parkland). He reports that he and his wife, Laura, have two children.

**Bret W. Stolp, M.D., Ph.D., '88,** works in the Department of Anesthesiology at Duke. He and his wife have two children, Ryan, 4, and Melanie, 2.

**Eliot Atstupenas, M.D. '89,** recently completed an emergency medicine residency at University Hospital in Stoney Brook, NY. He is now with Durham Emergency Physicians, PA, and works in the emergency room at Durham Regional Hospital. Atstupenas, who lives in Cary, says he's glad to be back in North Carolina.

# 90s

**Ann Cyptar, M.S. '90,** lives in Pittsboro and is a speech/language pathologist.

**Mark Zimmerman, M.D. '90, and Sherri Zimmerman, M.D. '91,** announce the arrival of Matthew Woodrow, born in June. Mark is a fourth-year obstetrics-gynecology resident, and Sherri is a third-year pediatrics resident at the University of Texas Health Science Center in San Antonio, TX.

**Michael Soboeiro, M.D. '91,** is a resident physician at Massachusetts General Hospital in Boston. He and his wife, Elizabeth, have a son, Andrew John, born in August.

**Parlyn Thurman, M.D. '91, and Robert Hatch, M.D. '91,** were married last May. They both work at Howard University Hospital in Washington, D.C., where she is a radiology resident, and he is an orthopedic surgery resident.

**Edward Primka, M.D. '92, and Lynda Primka, M.D. '92,** are both doing residencies in Cleveland, OH. They announce the birth of a son, Edward (Teddy) John Primka IV last February.

**Deaths**
John Charles Ward, M.D. '54

*Marion Danis, M.D., Rose Snipes, M.D., and Linda Hawes, M.D., talk about the "good old days" at the first Department of Medicine Housestaff Reunion in June. About 70 former housestaff returned for the event, which featured speakers Hawes, HS '68; and Harold Roberts, M.D., Sarah Graham Kenan Professor of Medicine and Pathology and Hematology division chief.*

# President's Letter

The fall of 1994 has been eventful and exciting for your university and your medical school. On a beautiful fall day in late September, our dean, Stuart Bondurant, M.D., was the distinguished speaker at the Norma Berryhill Lecture. University officials and UNC School of Medicine faculty and alumni, as well as friends and family of the Berryhills were treated to a moving history and a future perspective of our medical school. On October 12, medical school faculty and alumni participated in our university's Bicentennial celebration; events relating to this occasion will continue throughout the school year with campus-wide open houses occurring on April 9, 1994. Mark your calendars for this date and April 29-30, 1994, when our Spring Medical Alumni Association meeting is scheduled. Weekend highlights include class reunions, Loyalty Fund campaign results, the exciting Spicer-Breckenridge lecture and much more.

The highlight, however, of this very busy fall took place on a rainy, cool evening in late October. This event, a dinner at the Kenan Center, was a part of our Fall Medical Alumni Weekend, and honored UNC Medical Alumni Association Loyalty Fund Associates, who have contributed $1,000 or more to the Loyalty Fund. Also honored were medical students who were the 1993-94 recipients of your UNC Medical Alumni Association scholarships. Your generosity made possible the expenditure of $91,000 in scholarships this year. In addition, interest earned from the Medical Alumni Endowment Fund funded four research grants to UNC Medical School housestaff and faculty.

Sixteen students were awarded Loyalty Fund Merit Scholarships of $2,500 based on academic achievement alone. Twenty students were designated Medical Alumni Scholars and were awarded $2,500 scholarships based on academic excellence, as well as service to humanity, breadth of personal and education experiences, evidence of financial need, diversity, and for fourth-year recipients, a stated desire to pursue a career as a medical generalist. A $1,000 scholarship was also awarded to a Medical Allied Health student who is pursing a master's in physical therapy.

During the evening, we alumni had the distinct pleasure and wonderful opportunity to talk with these exceptionally bright and interesting students. They were so grateful to the Medical Alumni Association for our interest, commitment and gifts, which made these scholarships possible. Many of them had written personal letters to Dr. William Easterling Jr., [associate dean for continuing medical education and alumni affairs] and to me.

One student wrote: "I look forward to the four years of academic challenges and growth opportunities. As an alumna, I plan a lifelong involvement with the Medical Alumni Association."

Another wrote: "I am honored that the alumni feel my career merits their support. I think these gifts from you ... require me to act as the custodian, rather than the owner of my medical education. I don't yet know exactly how I'll fulfill the duties of my stewardship. For the next few years, I think I can serve best by learning to practice good medicine. Your gift, like the others, tremendously eases that task. For the future, I owe ever more thanks to North Carolina, both school and state. It is an obligation I welcome."

Only a few years ago, scholarship amounts ranged from $250 to $500 maximum. Through your Loyalty Fund, we are moving forward. As your president, I thank you for your thoughtful and caring gifts, and encourage you to continue and increase your support to these most valuable aspiring physicians.

I look forward to seeing many of you in cities throughout the state in early 1994 as we begin our annual Loyalty Fund campaigns. As I said in an earlier letter, we need your voice, your suggestions, your encouragement and your gifts as never before. The alumni-giving participation goal is only 33 percent. I am counting on all of us to do better. Our medical school certainly gave each of us more than 33 percent effort when we were here. Let's give back generously some of what was so carefully given to us as medical students and housestaff.

Mary Susan K. Fulghum

Mary S. Fulghum, M.D.

# CME/Alumni Calendar

| | | |
|---|---|---|
| | **Medical Alumni Activities** | |
| April 29-30 | Spring Medical Alumni Weekend | Chapel Hill |
| | **Continuing Education** | |
| December 2-4 | Sports Medicine Conference | Research Triangle Park |
| December 3-4 | Electrocardiogram Reading Course | Chapel Hill |
| December 4 | UNC Ophthalmology Resident's Day | Chapel Hill |
| January 13-15 | Southeastern Fracture Conference | Research Triangle Park |
| January 20-21 | Practice Dilemmas in Geriatric Care | Chapel Hill |
| March 7-11 | Professional Practice in Molecular Diagnosis: A Workshop | Chapel Hill |
| April 6-9 | 18th Annual Internal Medicine Conference | Chapel Hill |
| April 9 | Carolina Saturday: A Bicentennial Open House | Chapel Hill |
| April 25-26 | International Symposium on Inherited Epidermolysis Bullosa | Chapel Hill |
| May 4-5 | May Day Trauma Conference | Chapel Hill |
| June 24-26 | Daily Anesthetic Challenges | Hilton Head |

For more information about CME courses or alumni activities, contact the Office of Continuing Medical Education and Alumni Affairs, School of Medicine, 231 MacNider Building, UNC, Chapel Hill, NC 27599, or call 1-800-862-6264.

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